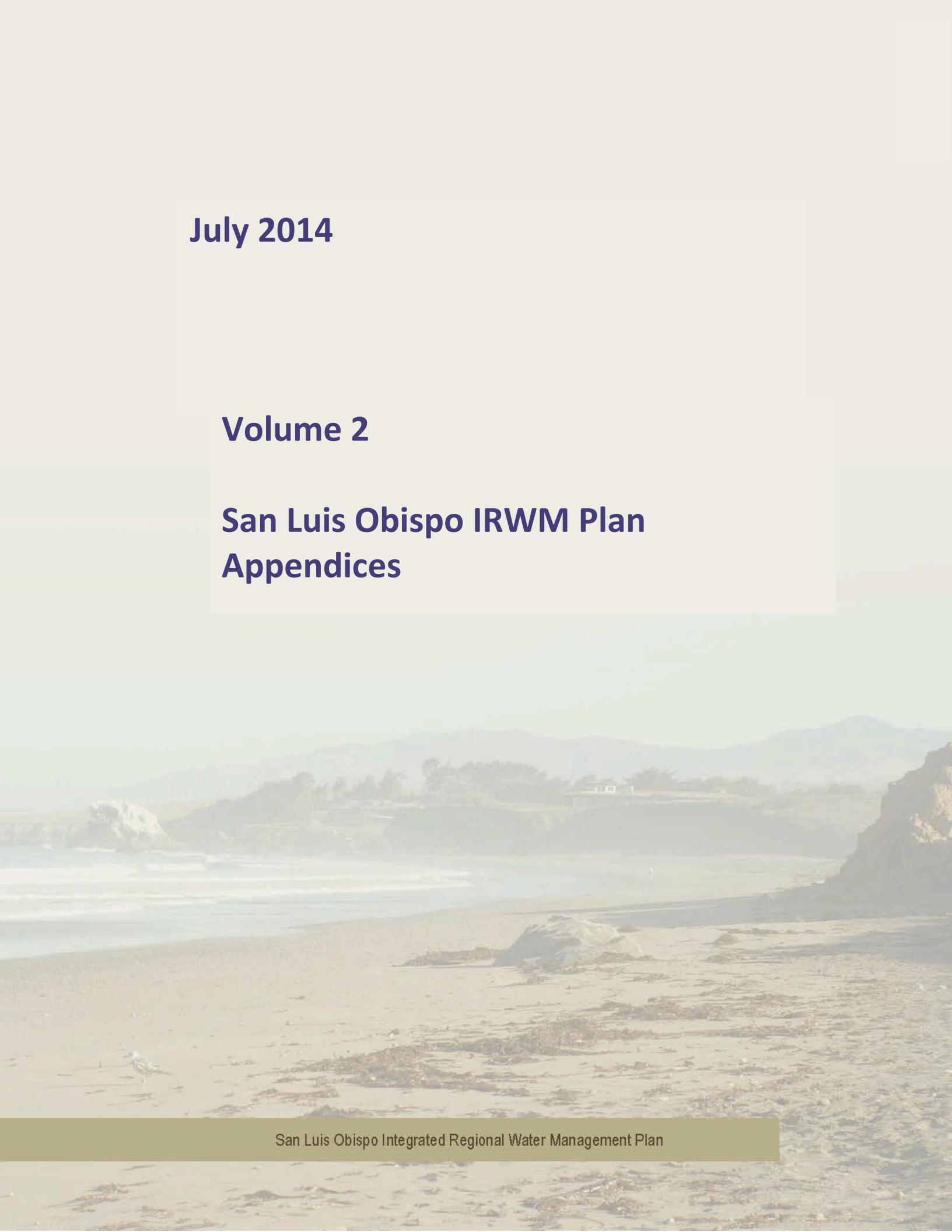
July 2014

Volume 2

San Luis Obispo IRWM Plan Appendices



Volume 2. Appendices

Table of Contents

The following is a complete list of Appendices for the San Luis Obispo Integrated Regional Water Management Plan. Items with a star (*) and shown in **blue text** indicate sections currently acting as placeholders and will be populated for the final version of the Plan.

Appendix A – Resolution of Adoption
Appendix B – San Luis Obispo County Region Integrated Regional Water Management Program Participants Memorandum of Understanding and Signatories
Appendix C – IRWM Communications and Outreach Plan
Appendix D – Notice of Public Meetings, Comments and Outreach Material
- **Appendix D-1 - Public Meeting Notices**
- **Appendix D-2 - Brochures**
- **Appendix D-3 - List of Attendees and Public Meeting Comments**
- **Appendix D-4 - Sub-Region Workshop List of Issues and Concerns**

Appendix E – Not Used
Appendix F – Resource Management Strategy Screening and Definition Packet
Appendix G – Project Solicitation and Scoring Forms
- **Appendix G-1 Project Selection Brochure**
- **Appendix G-2 Abstract forms, Project Objectives Worksheets, and Phase 2 Long Forms**
- **Appendix G-3 Project Abstract Reports**
- **Appendix G-4 Ranked Project List**
- **Appendix G-5 Project Form Review Paper**
- **Appendix G-6 Project Selection Briefing Paper**

Appendix H – Not Used
Appendix I – Public Comments on Goals and Objectives and Draft IRWM Plan
***Appendix J – Agricultural Water Demand Analysis**
***Appendix K – Data Management**
- ***Appendix K-1 – Data Management Summary Report by Wallace Group**
- ***Appendix K-2 – GIS-Based Data Management System User Manual**

***Appendix L – Groundwater Basin Descriptions**
***Appendix M – Water Planning Area Descriptions**
Appendix N – San Luis Obispo County Watershed Management Planning Project Report
***Appendix O – Salt and Nutrient Reports (e-only)**
- ***Appendix O-1 – Salt and Nutrient Management Planning Priorities Tech Memo**
- ***Appendix O-2 – Paso Robles Basin Salt and Nutrient Management Plan**
- ***Appendix O-3 – Paso Robles Basin Groundwater Model Update**
- ***Appendix O-4 – Santa Maria Basin Characterization**

***Appendix P – Regional Recycled Water Study**
Appendix Q – State Guideline Requirements Tables
***Appendix R – Climate Change Analysis for San Luis Obispo IRWM Region**
***Appendix S – 2012 Master Water Report**
***Appendix T – Awahnee Water Principles, A Blueprint for Regional Sustainability**
Appendix U – Response to Public Comments

Appendix A.
Resolution of Adoption

A – Resolution of Adoption

A – Resolution of Adoption

**[Placeholder for the schedule of the 2014 IRWM Update Resolution of Adoption;
2005 IRWM Update Resolution of Adoption provided below]**

BEFORE THE BOARD OF SUPERVISORS

of the

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT

Tues day December 6, 20 05

PRESENT: Supervisors Harry L. Ovitt, Jerry Lenthall, K.H. "Katcho" Achadjian, James R. Patterson and Chairperson Shirley Bianchi

ABSENT: None

RESOLUTION NO. 2005-403

RESOLUTION APPROVING THE INTERGRATED REGIONAL WATER MANAGEMENT PLAN

The following resolution is hereby offered and read:

WHEREAS, the State of California has encouraged the development of Integrated Regional Water Management Plans to address the management of California's water and water dependent resources pursuant to the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Water Code Section 79560 *et seq.*) (Also known as Proposition 50); and

WHEREAS, the concepts, direction, and approach to water resource management embodied in the State's guidelines closely match those of the San Luis Obispo County Flood Control and Water Conservation District; and

WHEREAS, in order to effectively and efficiently integrate water resource management planning objectives and implementation strategies in the five key water management areas of: Water Supply; Water Quality Protection and Improvement; Ecosystem Preservation and Restoration; Groundwater Monitoring and Management; and Flood Management; and

WHEREAS, The Integrated Water Management Plan identifies goals, objectives, strategies and projects designed to improve regional water supply reliability, water recycling, water conservation, water quality improvement, storm water capture and management, flood management, recreation and access, wetlands enhancement and creation, and environmental and habitat protection and improvement.

NOW, THEREFORE, BE IT RESOLVED AND ORDERED, by the Board of Supervisors of the San Luis Obispo County Flood Control and Water Conservation District, that the Integrated Regional Water Management Plan for the San Luis Region is hereby approved, and further the Director of Public Works of the County of San Luis Obispo is hereby authorized and directed to implement the five-year update plan contained within it.

Upon motion of Supervisor Achadjian, seconded by Supervisor Lenthall, and on the following roll call vote, to wit:

AYES: Supervisors Achadjian, Lenthall, Ovitt, Patterson, Chairperson Bianchi

NOES: None

ABSENT: None

ABSTAINING: None

the foregoing Resolution is hereby adopted.

SHIRLEY BIANCHI
Chairperson of the Board of Supervisors

ATTEST:

JULIE L. RODEWALD
Clerk of the Board of Supervisors

[SEAL] By: C.M. CHRISTENSEN Deputy Clerk

APPROVED AS TO FORM AND LEGAL EFFECT:
JAMES B. LINDHOLM, JR.
County Counsel

By: _____
Deputy County Counsel

Dated: 11/18/05

L:\Environmental\DEC05\BOS\IRWM Adoption Board Resolution.doc.lnd.mh

STATE OF CALIFORNIA,
County of San Luis Obispo, } ss.

I, JULIE L. RODEWALD, County Clerk and ex-officio Clerk of the Board of Supervisors of the San Luis Obispo County Flood Control and Water Conservation District, do hereby certify the foregoing to be a full, true and correct copy of an order made by the Board of Supervisors, as the same appears spread upon their minute book.

WITNESS my hand and the seal of said Board of Supervisors, affixed this 23rd day of December, 20 05.

(SEAL)

JULIE L. RODEWALD
County Clerk and Ex-Officio Clerk of the Board of Supervisors

By C M Christensen
Deputy Clerk.

Appendix B.

San Luis Obispo County Region
Integrated Regional Water Management Program
Participants Memorandum of Understanding
and Signatories

B – San Luis Obispo County Region IRWM Program Participants Memorandum of Understanding (MOU)

Memorandum of Understanding Signatories for
San Luis Obispo County Region IRWM Participants

Agency or Organization	IRWM MOU Date Executed
San Luis Obispo County	11/6/2012
San Luis Obispo County Flood Control and Water Conservation District	11/6/2012
California Men's Colony	11/7/2012
Cambria Community Services District	4/29/2014
Central Coast Salmon Enhancement	1/2/2013
City of Arroyo Grande	11/27/2012
City of Grover Beach	12/17/2012
City of Morro Bay	10/12/2012
City of Paso Robles	2/5/2013
City of Pismo Beach	2/11/2013
City of San Luis Obispo	11/20/2012
Coastal San Luis Resource Conservation District	10/15/2012
Heritage Ranch Community Services District	3/25/2013
Land Conservancy	1/8/2013
Los Osos Community Services District	9/6/2012
Morro Bay National Estuary Program	10/4/2012
Nipomo Community Services District	10/15/2012
Oceano Community Services District	10/17/2012
Templeton Community Services District	11/26/2012
San Miguel Community Services District	11/30/2012
San Simeon Community Services District	10/17/2012
S&T Mutual Water Company	5/16/2013
Upper Salinas - Las Tablas Resource Conservation District	10/11/2012

San Luis Obispo County Region
Integrated Regional Water Management Program Participants
Memorandum of Understanding

The undersigned agencies and organizations hereby agree as follows:

1. BACKGROUND

The State of California has established an Integrated Regional Water Management (IRWM) planning and grant program pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code (PRC) Section 75001 et seq., also known as Proposition 84). This program is anticipated to be perpetuated and/or modified by future Bond acts. The IRWM program provides guidance for collaborative efforts to manage all aspects of water resources in a region by crossing jurisdictional, watershed, and political boundaries to involve multiple agencies, stakeholders, individuals, and groups in order to address issues and differing perspectives of all entities involved through mutually beneficial solutions. Regions that develop IRWM plans in accordance with the guidelines are eligible for certain water resources grant funding opportunities.

In accordance with PRC Section 75001 (et seq.) and State IRWM Program guidelines, a Memorandum of Understanding (MOU) (dated 2009), signed by eleven agencies within San Luis Obispo County, established a Regional Water Management Group (RWMG) for the San Luis Obispo County IRWM Region, and the San Luis Obispo County IRWM Region was officially accepted by the State in May 2009.

The San Luis Obispo County IRWM Region water resources stakeholders have determined the need to update the IRWM MOU in order to meet new State IRWM guidelines, to clarify the governance structure for IRWM planning in the San Luis Obispo County IRWM Region, and encourage broader participation. This MOU, in conjunction with the current IRWM Plan, sets forth the San Luis Obispo County IRWM Region's governance structure thereby allowing members and other stakeholders to understand how to participate in the IRWM Plan development and implementation.

2. PURPOSE, GOALS, AND APPROACH

2.1 Purpose. The purpose of this MEMORANDUM OF UNDERSTANDING (MOU) is to establish the mutual understandings among the San Luis Obispo County Region participants with respect to their joint efforts to develop and implement an Integrated Regional Water Management (IRWM) Plan for the San Luis Obispo County Region, including the definition of common IRWM terms, roles and responsibilities of IRWM Program Participants, and decision-making processes.

2.2 Goals. The goal of the IRWM program is to provide a reliable, long-term, and high-quality water supply, and to establish a unified vision among the participants' goals for water quality improvement, ecosystem preservation, water supply protection and enhancement, ground water management and flood management, in the context of social justice and climate change adaptation, while protecting the environment. The adopted IRWM plan will identify major water-related goals, objectives and conflicts within the region, consider a broad variety of water management strategies, identify the appropriate mix of water demand and supply management alternatives, water quality protections, flood management strategies, and environmental stewardship actions.

2.3 Approach. The San Luis Obispo County Region participants are specifying their shared intent to coordinate and collaborate on water management issues, giving consideration to disadvantaged communities and Native American tribes and their water related needs. In order to

enhance participation of stakeholders, it will be necessary to work at a sub-regional level to better understand the water resources needs and priorities throughout the region. When applying for grants, the San Luis Obispo County Region will strive to distribute the grant funding request fairly across the geographic region. The goal is to distribute awarded funding from each grant cycle equally across the sub-regions (i.e. one quarter of the overall funding to benefit each of the three sub-regions' projects/programs and one quarter of the overall funding to benefit regional projects/programs), to the extent feasible.

3. DEFINITIONS

3.1 Integrated Regional Water Management Plan (Plan). A comprehensive plan for a defined geographic area which shall satisfy the requirements of California's IRWM Program.

3.2 San Luis Obispo County Region (Region). The geographic area of San Luis Obispo County, which is coterminous with the San Luis Obispo County Flood Control and Water Conservation District (District) boundary.

3.3 Local Agency. Any city, county, city and county, special district, joint powers authority, or other political subdivision of the state, a public utility as defined in Section 216 of the Public Utilities Code, or a mutual water company as defined in Section 2725 of the Public Utilities Code.

3.4 Program Participants. Development and implementation of the Region's Plan is a collaborative effort undertaken by the Region's participants, as further discussed in Section 4. The effort is being led by the District, in partnership with the Regional Water Management Group, Water Resources Advisory Committee, Implementation Affiliates, and Interested Stakeholders. Only regional projects and programs to be implemented by those agencies which have adopted the Plan will be eligible for grant applications. The Region categorizes IRWM Program Participants into the following:

3.4.1 Regional Water Management Group (RWMG). A group in which three or more local agencies, at least two of which have statutory authority over water supply or water management, as well as those other persons who may be necessary for the development and implementation of the Plan, participate by means of this memorandum of understanding, in accordance with requirements of the California Water Code (CWC § 10539). The Region's RWMG members are signatories to this MOU, have adopted the current Plan, and may designate a representative to participate in RWMG activities and its Working Group. The entities must be either a Local Agency or an IRS 501(c)(3) nonprofit organization. The RWMG has the capacity to carry out projects (i.e. financial resources, management structure, adequate staffing). The agencies/organizations that form the RWMG may have planning or implementation projects eligible for State IRWM grants.

3.4.2 Water Resources Advisory Committee (WRAC). This is the committee comprised of water purveyor, resource conservation district, environmental and agricultural, and other water resources representatives that was originally established in the 1940s to advise the District Board of Supervisors on water resource issues. The WRAC is a Brown Act committee that meets monthly, with the exception of July and August. Many participants are actively engaged in issues relevant to Plan development and implementation, and will represent important stakeholder groups throughout the program.

3.4.3 RWMG Working Group (Working Group). The Working Group will involve representatives from the RWMG who have technical expertise and are able to work on the details associated with IRWM efforts. The Working Group will engage stakeholders at a sub-regional level in order to better understand the specific water resources needs and priorities of that sub-region.

3.4.4 Implementation Affiliates. These entities will adopt the Plan by resolution, but would not be signatories of the MOU. The entities must be either a Local Agency or an IRS 501(c)(3) nonprofit organization. The Implementation Affiliates have the capacity to carry out projects (i.e. financial resources, management structure, adequate staffing). In order to have a planning or implementation project eligible for State IRWM grants, agencies must be an Implementation Affiliate if they are not a part of the RWMG.

3.4.5 Interested Stakeholders. These individuals, organizations, and nonprofits (including those that are not IRS 501(c)(3) nonprofit organizations) who are interested in the IRWM program. The Interested Stakeholders may sign a letter of support for the Plan, or otherwise provide input to the RWMG, but would not be eligible for directly receiving State IRWM grant funds.

3.5 Sub-regions. The Region's IRWM program seeks to engage stakeholders and understand the water resources needs of the Region. To adequately ensure this balanced access and opportunity for participation in the IRWM program, the RWMG will utilize a sub-regional geographic structure, allowing more focused planning and local outreach efforts that are later brought into the context of the overall IRWM Region. These sub-regions have been deliberately defined in terms of logical planning and watershed/ hydrogeologic unit boundaries. These "sub-regions" include the North Coast, North County, and South County (see Attachment 1).

3.6 Regional Projects or Programs. Projects or programs to be implemented by the RWMG and/or Implementation Affiliates are identified in the Plan and are based upon the State's IRWM Guidelines under which the current Plan was adopted, which includes but is not limited to: reducing water demand through agricultural and urban water use efficiency, increasing water supplies for any beneficial use, improving operational efficiency and water supply reliability, improving water quality, improving resource stewardship, and improving flood management.

3.7 Integration. Assembling into one document the water-related management strategies, projects, programs, and plans of the Region. The development and implementation of the Plan should demonstrate the RWMG is forming, coordinating and integrating separate efforts in order to function as a unified effort in a collaborative manner that balances interests and engages a variety of stakeholders and seeks to efficiently integrate regional resources. The Plan development will identify water management strategies for the Region and the priority projects and programs that demonstrate how these strategies work together to meet goals identified in Section 2. It will also identify regional benefits of linkages between projects and plans that address different primary water-related objectives (for example, identifying regional benefits of linkages between a water supply project and a flood management project in the same watershed).

4. IRWM PROGRAM PARTICIPANTS

4.1 Program Participant Structure. Elements of the Plan will be developed and implemented by the Program Participants. The RWMG, including the District as the Lead Agency, and the Implementation Affiliates are responsible for Plan development and implementation.

4.2 Plan Development and Implementation. The Region's Plan that was adopted by the District, developed in coordination with and approved by stakeholders in 2005, and updated in 2007, will be the basis for subsequent adopted Plans for the Region. The Working Group will propose changes to the previous versions of the Plan to comply with new State guidelines and incorporate new information and projects. Since a key element of the IRWM Program is integration, the RWMG will work with Program Participants to identify water management strategies for the Region and sub-regions and the priority projects that demonstrate how these strategies work together to meet the purpose and goals in Section 2. How each Program

Participant contributes and participates in Plan development and implementation is described below:

4.2.1 Lead Agency. The District will act as the lead agency for Plan development, will execute this MOU, and will adopt the Plan in accordance with 4.3 and 4.4 below. The District will ultimately be responsible for the final production of the Region's Plan, hiring consultant(s) to develop the Plan, and presentations to stakeholders, submittal of IRWM grant applications, and execution and administration of grant agreements with the State. As the Lead Agency, the District will execute and administer agreements with RWMG members and Implementation Affiliates responsible for the implementation of projects that are awarded grants, including data collection relevant to grant agreements, project reporting, etc. Efforts described in Section 4.2.1 are subject to the availability of funding.

4.2.2 RWMG. Members will execute this MOU and adopt the Plan in accordance with 4.3 and 4.4 below. RWMG members will designate a representative with clear authority to represent the agency or organization, provide expertise, provide information in a timely manner, participate in meetings, review and approve technical documents as needed, and will provide the District with their designated representative's contact information. This representative will be eligible to participate on the Working Group. All RWMG members, whether or not their representative is participating in the Working Group, hereby agree to provide information sufficient to meet State guidelines for their regional projects and programs to be included in the Plan and participate in the review of the Plan. RWMG members will consider integrating projects and programs with other agencies when possible, especially with disadvantaged communities and Native American tribes, in accordance with State IRWM Guidelines. RWMG members responsible for the implementation of regional projects and programs awarded grant funding will be responsible, through contract with the District, for complying with the provisions of the District's grant agreement with the State. The RWMG will provide updates to the WRAC and seek WRAC support of recommendations at key decision points.

4.2.3 WRAC. The WRAC will provide a forum for public meetings/ workshops related to Plan development and implementation at key decision points. The WRAC will review and comment on the RWMG recommendations to the District's Board of Supervisors at key decision points.

4.2.4 Working Group. Representatives of the Working Group will be designated by the RWMG member and will have clear authority to represent the agency or organization, provide expertise, provide information in a timely manner, participate in meetings, review and approve technical documents as needed, and will provide the District with their designated representative's contact information. The District will provide materials with sufficient lead time for RWMG member and Working Group engagement. The Working Group will develop information, draft documents and recommendations pertaining to the Plan update consistent with current State IRWM Guidelines during Plan development. Efforts are anticipated to include stakeholder outreach, collection and incorporation of updated data, etc. The Working Group will develop information and recommendations for IRWM program planning and implementation, stakeholder outreach, and pursuit of funding opportunities. All RWMG members will participate in the process to select the Region's IRWM projects and programs for grant applications by way of the Working Group, who will conduct project/program solicitations and evaluations, and will make recommendations on grant funding allocations. The Working Group will need to conduct sub-regional public meetings during Plan development and implementation to facilitate stakeholder participation.

4.2.5 Implementation Affiliates. Implementation Affiliates shall adopt the Plan in accordance with Section 4.3. Implementation Affiliates will designate a representative with clear authority to represent the agency or organization, provide expertise, provide information in a timely manner, participate in meetings, review and approve technical documents as needed, and will provide the District with their designated representative's contact information. All

Implementation Affiliates will provide information sufficient to meet State guidelines for their regional projects and programs to be included in the Plan and participate in the review of the Plan and for implementation activities, such as project status updates, project reporting, data collection, etc. Implementation Affiliates will consider integrating projects and programs with neighboring agencies when possible, especially with disadvantaged communities and Native American tribes, in accordance with State IRWM Guidelines. Implementation Affiliates responsible for the implementation of regional projects and programs awarded grant funding will be responsible, through contract with the District, for complying with the provisions of the District's grant agreement with the State.

4.2.6 Interested Stakeholders. Interested Stakeholders may participate in the Plan development and implementation process by way of participation at WRAC and/or RWMG meetings. Interested Stakeholders that are not WRAC members will be notified when an IRWM program item will be reviewed by the WRAC if they request inclusion on the IRWM contact list (Section 5.6). Sub-regional meetings will be required to ensure Interested Stakeholders, including disadvantaged communities, who may not necessarily be able to attend WRAC meetings, can participate in Plan development and implementation.

4.3 IRWM Plan Adoption. Plan approval and adoption will be required of the governing bodies of RWMG members and Implementation Affiliates. Plan updates to meet new State guidelines, add new RWMG Members, add or remove and evaluate regional projects and programs, or other updates to information do not require Plan re-adoption. Significant changes to the Plan, including revised goals and objectives, revised methodologies (such as methodology for evaluating, ranking, and prioritizing projects and programs), revised regional boundaries, or other changes deemed significant by the RWMG and the Lead Agency, will require Plan re-adoption via the decision-making process described in Section 4.5.

4.4 Personnel and Financial Resources. It is expected that Program Participants will contribute the resources necessary to fulfill the responsibilities listed within Section 4 of this MOU. Program Participants that receive implementation grant funding, shall contribute a proportionate share of non-project costs associated with the grant agreement, based on awarded implementation funding (for example, contributing toward the cost of updating the Plan, should that be a condition of grant award)..

4.5 Decision Making. The RWMG shall develop IRWM program materials and will make recommendations to the Lead Agency at key decision points of the IRWM program. Written input will be sought between the representatives of RWMG members in the event the need for a decision arises that cannot be brought forth to the RWMG before a decision needs to be made. The District, by way of its Public Works Department, shall notify the RWMG agencies of recommendations being taken to the District's Board of Supervisors for action. The District's Board of Supervisors may approve, alter, or return any said recommendation of the RWMG. Furthermore, if the District's Board of Supervisors intends to alter an item or proposition approved by the RWMG, the District's Board of Supervisors shall set forth in writing its findings, after which the Board will hold a public hearing. The RWMG agencies shall have the right to appear and address the District's Board of Supervisors.

5. MUTUAL UNDERSTANDINGS

5.1 Need for the Region's IRWM Plan

5.1.1 To improve communication and cooperation between public and private agencies and minimize conflict-generated solutions.

5.1.2 To enhance our existing water management efforts by increasing stakeholder awareness of important issues, providing more opportunities for collaborative efforts and improving efficiencies in government and water management.

5.1.3 To qualify for state grants and other funding opportunities only available to those regions which have developed IRWM plans.

5.2 Subject matter scope of the IRWM Plan. The Plan focuses on water supply, water quality protection and improvement, ecosystem preservation and restoration, groundwater monitoring and management, and flood management as these are the most prevalent water resource issues facing the Region.

5.3 Geographical scope of the IRWM Program. The Region for this memorandum is coterminous with the boundary of San Luis Obispo County. This is an appropriate geographic region for integrated regional water management planning because it encompasses all aspects of water management generally within the same physical, political, environmental, social, and economic boundaries. The Region may engage stakeholders within the three sub-regions in order to better understand the specific water resources needs and priorities of that sub-region, which would then be incorporated into the context of the greater IRWM Region planning and implementation.

The Region is bordered by the Greater Monterey County IRWM region to the north, the Santa Barbara County and Watersheds Coalition of Ventura County IRWM regions to the south, and the Kern County IRWM region to the east.

Water resources issues that overlap neighboring regional boundaries are either covered by existing cooperative water management plans (i.e. Nacitone Watershed Management Plan), adjudication (i.e. Santa Maria Groundwater Basin), and operational agreements (i.e. Nacimiento Reservoir), or have no defining water resource management issue. All of these items are to be included in the Region's Plan consistent with the plans of neighboring regions. The RWMG will continue to coordinate with neighboring regions to address additional water resources issues and possible integrated water management strategies in our respective IRWM plans.

5.4 Non-binding nature. This document and participation in the IRWM program efforts are nonbinding, and in no way suggest that a RWMG member or Implementation Affiliate may not continue its own planning and undertake efforts to secure project funding from any source. An agency/ organization may withdraw from participation in accordance with Section 5.7.

5.5 Other on-going regional efforts. Development of the Plan is separate from efforts of other organizations to develop water-related plans on a regional basis. As the Plan is developed, work products can be shared with these separate efforts to provide them with current information.

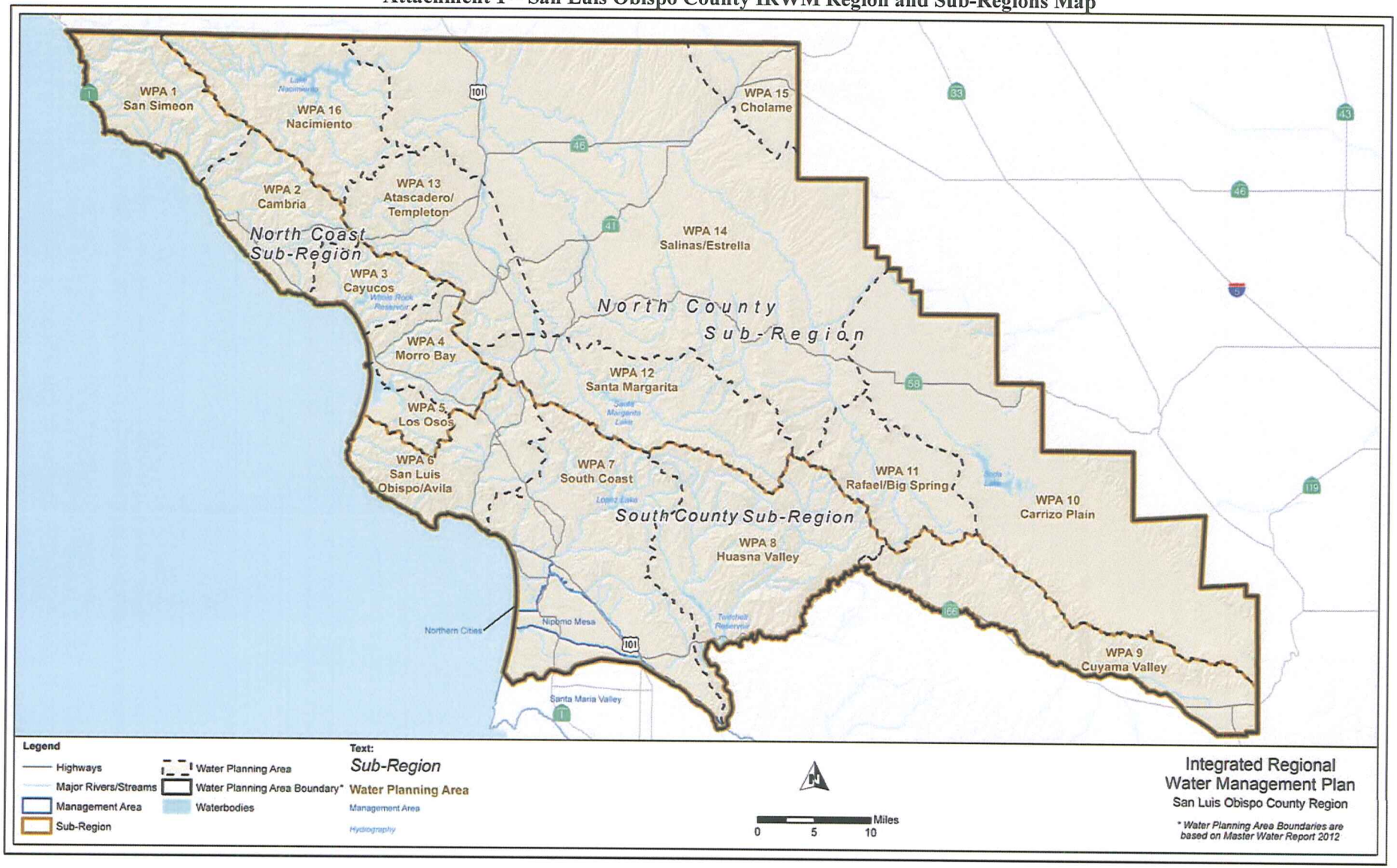
5.6 Reports and communications. The WRAC, an IRWM contact list, and the District's website will serve as the forum for updates and correspondence relating to the IRWM program and Plan development.

5.7 Termination. Because the Plan will require periodic review and updating for use into the future, it is envisioned that the joint efforts of those involved will be ongoing in maintaining a living document. Thus this MOU will remain as a reflection of the understandings of the RWMG Members. As indicated, parties to this MOU may terminate their involvement at any time, but must provide all RWMG agencies with 30 days' advance notice of intent to terminate.

5.8 Superseded Prior MOU. This MOU supersedes the MOU dated April 21, 2009 (2009 MOU).

5.9 Counterparts. This MOU may be executed in counterparts and has the same force and effect as if all the signatures were obtained in one document.

Attachment 1 – San Luis Obispo County IRWM Region and Sub-Regions Map



6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

COUNTY OF SAN LUIS OBISPO

By: JAMES R. PATTERSON

Chairman,
Board of Supervisors
of San Luis Obispo County

ATTEST:

JULIE L. RODEWALD
Clerk of the Board of Supervisors

By: Sandy Currens
Deputy Clerk

APPROVED AS TO FORM AND LEGAL EFFECT:

WARREN R. JENSEN
County Counsel

By: _____
Deputy County Counsel

Date: 9/24/12

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

COUNTY OF SAN LUIS OBISPO
FLOOD CONTROL AND
WATER CONSERVATION DISTRICT

By: JAMES R. PATTERSON

Chairman,
Board of San Luis Obispo County
Flood Control and
Water Conservation District

ATTEST:

JULIE L. RODEWALD
Clerk of the Board of Supervisors

By: Sandy Currens
Deputy Clerk

APPROVED AS TO FORM AND LEGAL EFFECT:

WARREN R. JENSEN
County Counsel

By: _____
Deputy County Counsel

Date: 9/24/12

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

signature

Larry Barkley

printed name

California Men's Colony

agency

Nov. 7, 2012

date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

_____ signature

Jerry Gruber _____ printed name

Cambria Community Services District _____ agency

4/29/14 _____ date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

SPaddack — signature

Sarah Paddack — printed name

Central Coast Salmon Enhancement — agency

1/2/13 — date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

T J McC	signature
Teresa J. McClish	printed name
City of Arroyo Grande	agency
11/27/12	date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

City of Grover Beach, California

	signature
Debbie Peterson, Mayor	printed name
City of Grover Beach	agency
December 17, 2012	date

Attest:

Donna L. McMahon, City Clerk

Approved as to Form:

Martin D. Koczanowicz, City Attorney

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

signature

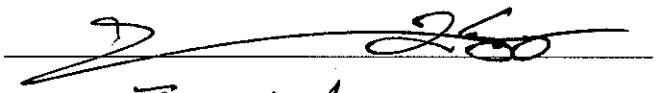
Rob Livick, PE/PLS — printed name

City of Morro Bay — agency

October 12, 2012 — date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.



signature

JAMES L. APP

printed name

CITY OF PASO ROBLES

agency

11 FEB 2013

date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

signature

Kevin M. Rice — printed name

City of Pismo Beach — agency

02/11/2013 — date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

Jan Marx, Mayor _____ signature

JAN MARX _____ printed name

CITY OF SAN LUIS OBISPO _____ agency

11/28/2012 _____ date

APPROVED AS TO FORM:

J. CHRISTINE DIETRICK
City Attorney

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

Neil Havlik — signature

Neil Havlik — printed name

Coastal San Luis RCD — agency

10-15-2012 — date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

[signature]	signature
John D'Ornellas	printed name
Heritage Ranch CSD	agency
March 25, 2013	date

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signature

Kaila Dettman — printed name

The Land Conservancy of SLO County — agency

January 22, 2013 — date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

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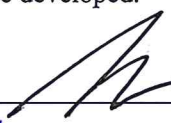

signature

MARSHALL E. OCHYLSKI printed name

Los Osos Community Services District agency

9/4/2012 date

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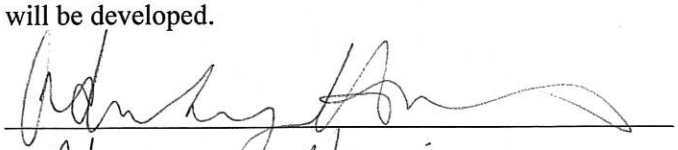
signature

Adrienne Harris
printed name

Morro Bay National Estuary Program
agency

10/4/12
date

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Mark Niel — signature

MARK NIELSEN — printed name

NRWMAC* — agency

3 OCTOBER 2013 — date

* Nacimiento Regional Water Management Advisory Committee

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

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Michael S. LeBrun — signature

MICHAEL S. LEBRUN — printed name

NIPOMO CSD — agency

10/15/2012 — date

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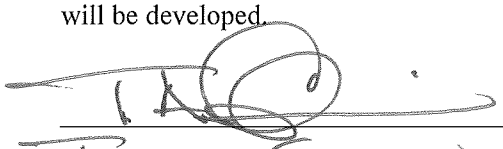


signature

Thomas Geaslen

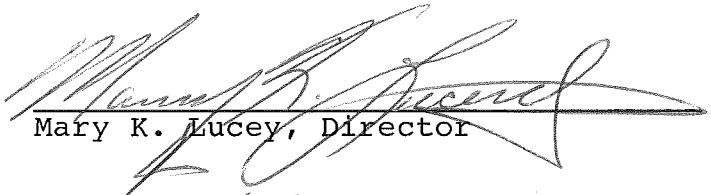
printed name

Oceano Community Services District

agency

10/17/2012

date



signature

Mary K. Lucey, Director

Mary K. Lucey

printed name

10-17-2012

date

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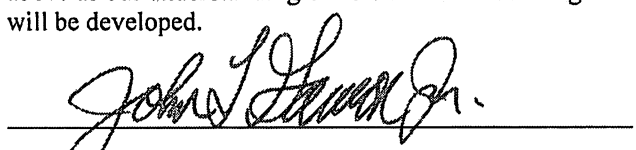

signature

John T. Gannon, Jr. — printed name

Templeton CSD — agency

November 26, 2012 — date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

_____ signature

Rene Salas printed name

San Miguel Community Services District agency

4/30/12 date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

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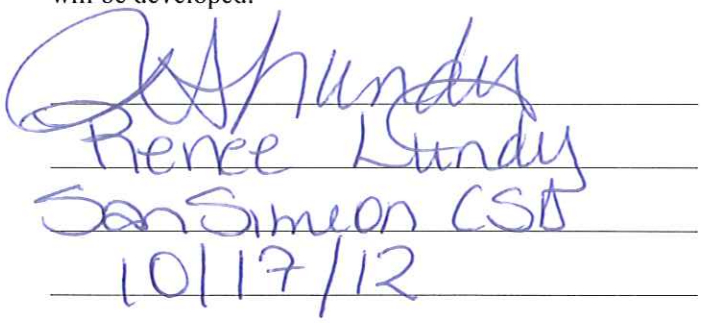

signature

Renee Lundy

printed name

San Simeon CSD

agency

10/17/12

date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

_____ signature

WILLIAM GARFINKEL _____ printed name

SLT MUTUAL WATER COMPANY _____ agency

MAY 16, 2013 _____ date

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective agencies or organizations, acknowledge the above as our understanding of how the San Luis Integrated Regional Water Management Plan will be developed.

Charles Pritchard — signature

Charles Pritchard — printed name

Upper Salinas / Las Tablas RCD — agency

10/11/12 — date

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Charles Pritchard — signature

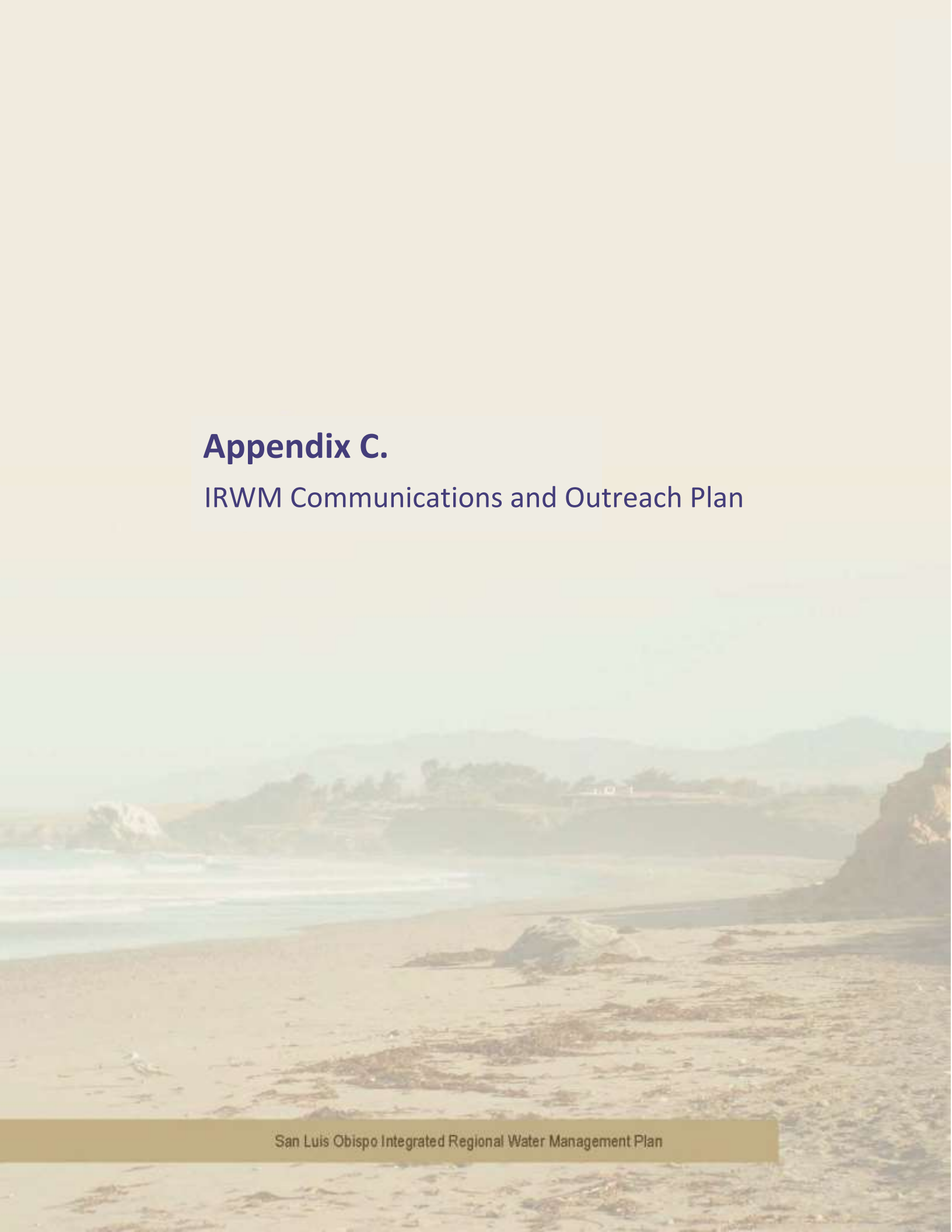
Charles Pritchard — printed name

Upper Salinas / Las Tablas RCD — agency

10/11/12 — date

Appendix C.

IRWM Communications and Outreach Plan



C – IRWM Communications and Outreach Plan

SAN LUIS OBISPO COUNTY COMMUNICATIONS AND OUTREACH PLAN – IRWM Plan Update 2013-2014

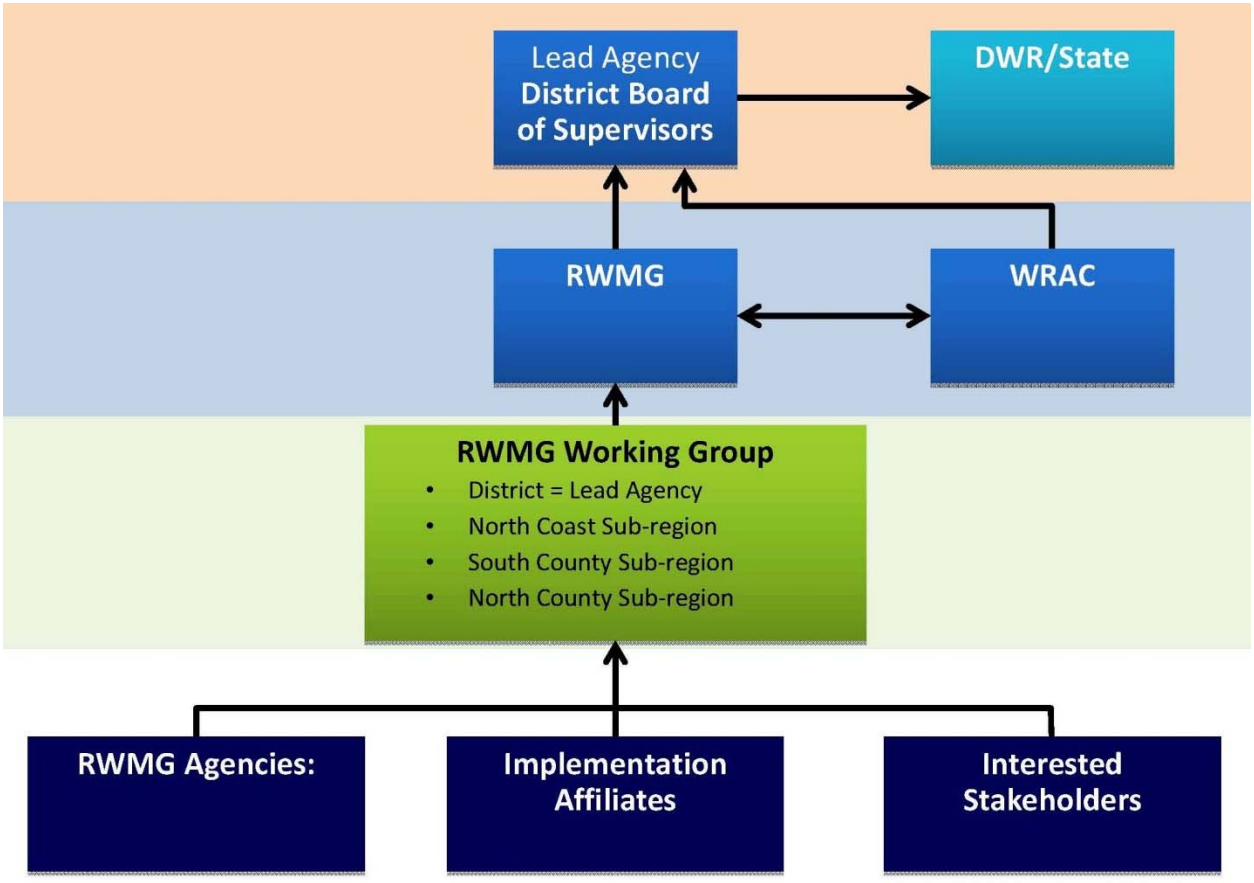


Table of Contents

Preface and Purpose 2

I. Participant Roles and Responsibilities 3

II. Key Assumptions of the Communication Plan and the Outreach Plan 5

III. Decision Making 5

IV. Communication Processes 8

IV.A Status Reports 9

V. External Communications 10

V.A Public Inquiries 10

VI. Communications Management 10

VI. A. Communication Protocol 10

VI.A.1 Email 10

VI.A.2 Communications Tracking and Storage 11

VI.A.3 Communications Changes 11

VII. Outreach Plan 11

VII.A Stakeholder List 12

VII.A.I Public and Stakeholder Involvement 12

VII.A.II DAC Outreach Plan 13

VII.A.II.a Sub-Regional DAC Visioning Workshop/Focus Group 13

PREFACE AND PURPOSE

The purpose of this Communications and Outreach Plan is to establish how communication will flow and be managed throughout the life of the San Luis Obispo County IRWM Plan Update project. The purpose of the Outreach Plan is to satisfy DWR outreach requirements and build a solid, inclusive and representative agency, stakeholder and DAC base that is supportive of the aims of the IRWM Plan.

This Communication Plan and Outreach Plan builds upon the SLO County MOU that identifies the IRWM Program Participants (Regional Water Management Group [RWMG], the WRAC, the RWMG Working Group, Implementation Affiliates and Stakeholders) involved in the Update and describes the planned and periodic communications that will occur between the entities. The Communications Plan is not intended to prescribe new protocol for the entities, i.e. the Plan does not establish communication guidelines for the WRAC, but instead characterizes what types of communication will be used and how communication will proceed to facilitate the overall goals of the Update.

What's the IRWM MOU?

Updated in 2012, the Memorandum of Understanding (MOU) establishes mutual understandings among the San Luis Obispo County IRWM Program Participants. It designates roles for developing and implementing the IRWM Plan and Program over time, and establishes the IRWM decision making process. By signing the MOU, eligible agencies and organizations become "Regional Water Management Group" members.

The Communications Plan also discusses:

- scheduled written and oral communications and forums;
- responses to requests for information;
- open questions to the IRWM entities and questions that come up in the work groups;
- frequency of scheduled communications;
- responsible person(s) for providing information.

The Communications Plan identifies the procedures used to manage communication for the project. The Communication Plan focuses on formal communication elements. Other communication channels exist on informal levels and enhance those discussed within this Plan. This Plan is not intended to limit, but to enhance communication. **Open, ongoing communication actively engaging stakeholders is critical to the success of the project.**

This Communications Plan is an integral part of the overall project management plan and will be used as guidance for the San Luis Obispo County IRWM Plan Update and Program stakeholder engagement.

It is DWR's expressed interest that the outreach strategy employed engages a balance of the interest groups listed below in the IRWM process regardless of their ability to contribute financially to the IRWM Plan's development or implementation. Stakeholders are necessary to address the objectives and resource management strategies of the IRWM Plan. Furthermore, a robust and broad stakeholder and public outreach strategy will lay a solid foundation for regional (and sub-regional) involvement as well as

build overall regional (and sub-regional) capacity. It will also set forth a framework and provide guidance for implementing projects and carrying on the goals of IRWM Program throughout future years. The Communications Plan aims to knit together a core group of active and engaged regional and sub-regional representatives who are motivated and equipped to meet the formidable challenges involved in planning for increased water quality, groundwater protection, stormwater management, water reliability, flood management, water quality, water supply, and equitable environmental benefits.

I. Participant Roles and Responsibilities

This section describes the roles and responsibilities of the entities involved in the San Luis Obispo County IRWM Plan Update. This section briefly describes the project organization, as it pertains to the flow of communication internally and relationships between the Regional Water Management Group (RWMG), the Water Resources Advisory Committee (WRAC), the RWMG Working Group, Implementation Affiliates and Interested Stakeholders. This section will also identify the control agencies and other stakeholders that will be involved in managing communications.

1. The **Regional Water Management Group (RWMG)** is responsible for the IRWM Plan development and implementation. The RWMG members are signatories to the most recent MOU and commit to adopting the 2014 IRWM Plan once finalized. The RWMG members must be either a Local Agency (as defined in the MOU) or an IRS 501(c)(3) nonprofit organization.

    a. The **Lead Agency** (currently, SLO Flood Control and Water Conservation District) leads the IRWM Plan development, submittal of the grant applications on behalf of the Region, and act as a liaison with DWR.

    Specifically, the roles and responsibilities of the Lead Agency are:

    - Final review and approval of IRWMP
    - Re-adopt IRWM Plan as needed
    - Execute MOU
    - Act as Lead Agency for Region
    - Make final decisions on IRWM activities[1]
    - Authorize grant applications
    - Enter into agreements with DWR
    - Approve implementation agreements
    - Approve funding for IRWM planning
    - Approve contracts with consultant(s)

[1] See MOU discussion on Decision-Making. Should discrepancies arise between recommended District Board of Supervisors action and RWMG agencies' recommended action (written consensus of majority), the District Board will hold a public hearing to allow agencies to appear and address the District Board – see MOU Section 4.5.

2. The **Water Resources Advisory Committee (WRAC)** advises the District Board of Supervisors (which is also the County Board of Supervisors) on water resource issues and represents 30+ agencies, organizations, and stakeholder groups.

   Specifically, the roles and responsibilities of the WRAC are:

   - Consider RWMG recommendations for the District Board
   - Provide IRWM updates to stakeholders

3. **RWMG Working Group** engages stakeholders at the sub-regional level (North County, North Coast, South County) in order to understand the specific water resources needs and priorities of that sub-region. The RWMG Working Group includes members with local knowledge and technical expertise.

   Specifically, the roles and responsibilities of the RWMG include the following:

   - Adopt IRWM Plan
   - Execute MOU
   - Designate representative with clear authority to represent agency/organization (for RWMG WG)
   - Submit planning/implementation projects/programs for IRWMP and grant funding
   - Submit planning/implementation projects/programs data as needed (maintain IRWMP and meet DWR requirements for grant; adhering to project deadlines and schedule)
   - Attend public meetings/ workshops
   - Update and make recommendations to WRAC on IRWM program
   - Seek WRAC support of IRWM program recommendations to District Board

4. **Implementation Affiliates** commit to adopting the 2014 IRWM Plan (once finalized) by resolution, but they are not signatories to the MOU. The Implementation Affiliates may include entities that may be project proponents or sponsors for implementation grant projects identified in the 2014 IRWM Plan.

   In specific, the roles and responsibilities of the Implementation Affiliates are:

   - Adopt IRWMP
   - Provide required information and data in a timely manner (adhering to project deadlines and schedule)
   - Designate representative with clear authority to represent agency/organization (for RWMG WG)
   - Submit planning/implementation projects/programs for IRWMP and grant funding

- Attend public meetings/ workshops

5. **Interested Stakeholders** provide valuable input into the planning process and inform potential project opportunities.

   In specific, the roles and responsibilities of the Interested Stakeholders are:
   - Provide input into development of IRWMP
   - Attend public meetings/ workshops

II. Key Assumptions of the Communication Plan and the Outreach Plan

- Communication and Outreach are two pillars upon which a successful, technically competent and inclusive IRWM Plan rest.
- The IRWM Plan process is an open and transparent process and engages all entities in the dialogue on water management in the SLO County IRWM Region.
- The Plan must conform to DWR IRWM Guidelines.
- The Public and Stakeholders will review and comment at key times in the update and on the compiled Draft IRWM Plan. Ample time will be given in advance of the request for comments.
- This Communication and Outreach Plan is being developed and implemented in accordance with the Scope of Work and Tasks approved by DWR.

III. Decision Making

Decisions will be made by a simple majority vote of RWMG member representatives (either agency's primary or secondary) present at a meeting. Proxy voting will not be allowed, however, those who will not be able to attend meetings may provide input on the topic that will be discussed in advance of the meeting. This may be in the form of written comments, but no vote. Consensus is the goal and is to be achieved whenever possible. The RWMG agrees that a quorum is constituted as a simple majority of the RWMG representatives (no more than one vote per member agency) attending any meeting. Decision-making will deal with such topics as coordination with other related planning activities, access to resources (human resources and informational resources), interpretation of work and work tasks, defining and prioritizing IRWM Plan Objective, defining the Project Review Process, and approval of draft and final documents.

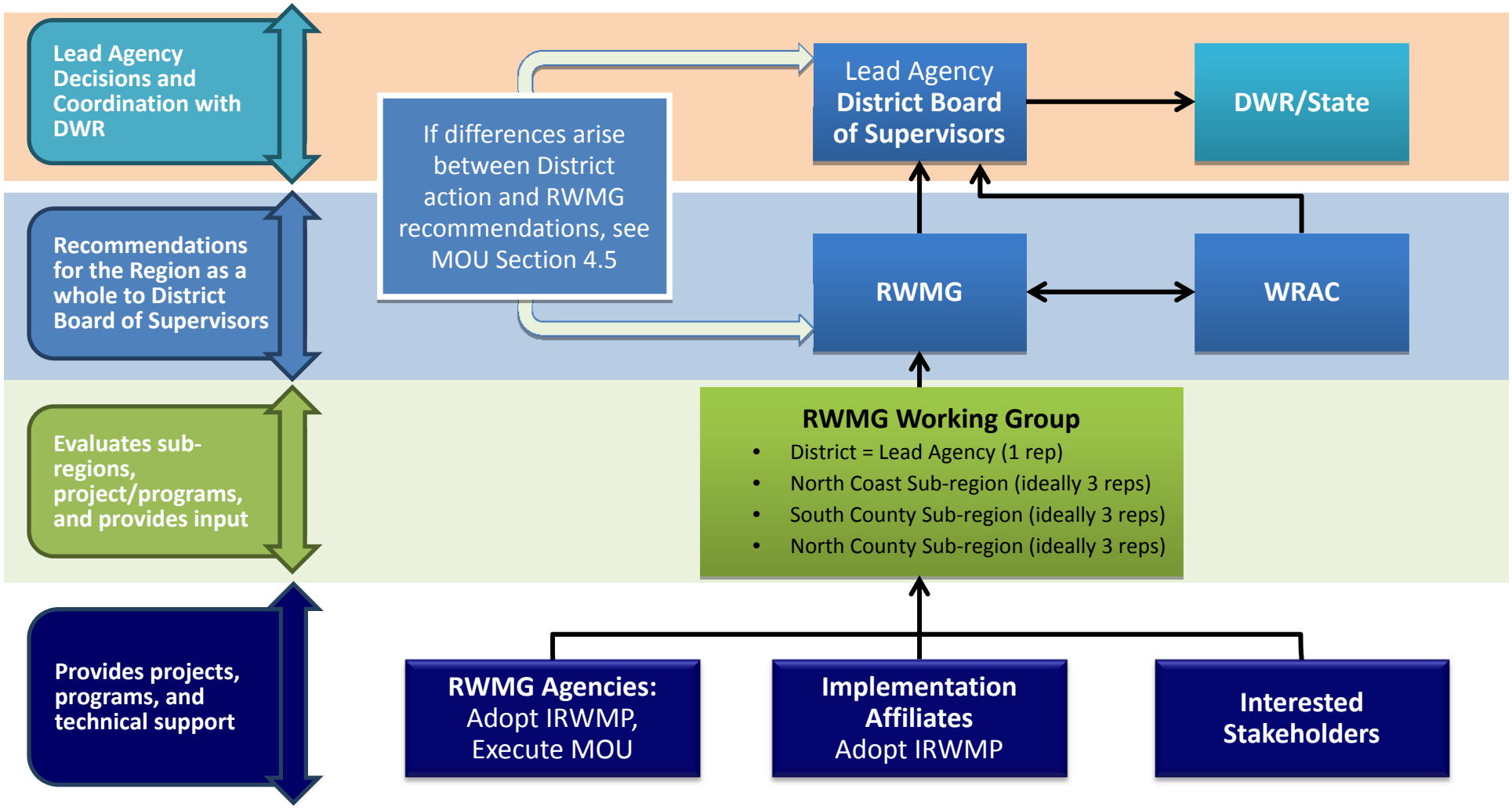
Implementation Affiliates and Interested Stakeholders may attend all meetings but are not voting members. Implementation Affiliates and Interested Stakeholders will have the opportunity to speak for

three minutes during public comment at the RWMG meetings. Implementation Affiliates and Interested Stakeholders will have the opportunity to comment on this Plan at appropriate and designated intervals.

Decisions may be appealed through the following process:

- If a participant does not agree with a decision or action, the member will submit a short written memo providing background and a summary of the decision and nature of their objection to the RWMG.
- This memo will be reviewed by the RWMG with the intent of resolving the objection.
- If resolution is not possible within the workgroup structure, the memo may be submitted to the WRAC or the SLO District Board (Board of Supervisors) depending on the level decision needed.

Decision Making Structure



IV. COMMUNICATION PROCESSES

1. **Informal** - Informal communications consist of e-mail, conversations or phone calls and serve to supplement and enhance formal communications. Due to the varied types and ad-hoc nature of informal communications, which will occur among and between all the entities, they are not discussed in this plan.

2. **Formal -** San Luis Obispo County IRWM Plan Update will engage in various types of formal communications. The types and purposes are described below:

    a) **Notice of Intent–** A formal "Notice of Intent" (NOI) to update the San Luis Obispo County IRWM Plan will be prepared and will be distributed to all entities. The NOI will also be publically noticed in media publications throughout the County. The NOI will be posted on the SLO County website (www.slocountywater.org) for public access.

    b) **Public Meeting Notices** – Adoption Hearings on the Plan and certain meetings will be publically noticed to allow for public and stakeholder input**.** Meeting Notices will be posted on the SLO County website (www.slocountywater.org) for public access.

    c) **RWMG Meeting Notices** – Will be generated and sent out by email to the RWMG two (2) weeks in advance of the actual meeting. The WRAC will be copied on RWMG meeting notices to ensure the WRAC is kept abreast of the progression on the Plan. Meeting Notices, Agendas and Meeting Minutes will be posted on the SLO County website (www.slocountywater.org) for public access.

    d) **WRAC** meeting notices have been generated and will continue to be generated and sent via email to all entities and individuals that request to be added to the email distribution list. Meeting Notices, Agendas and Meeting Minutes will be posted on the SLO County website (www.slocountywater.org) for public access.

    e) **RWMG Working Group** meeting notices will be generated and sent out by email two (2) weeks in advance of the actual meeting. The WRAC and the RWMG will be copied on Working Group meeting notices to ensure that the RWMG is abreast of the progression on the Plan and the progress on issue areas. Interested Stakeholders will also be copied on RWMG Working Group meetings. Meeting Notices, Agendas and Meeting Minutes will be posted on the SLO County website (www.slocountywater.org) for public access.

3. **Critical Success Factors**

- Meeting attendance.
- Compliance with information/data requests.
- Review of TMs, draft, and final drafts of plan according to schedule and workplan (based on Scope of Work).

- Agency participants have decision-making authority and communicate frequently with agency boards and councils to ensure information about the Plan is current and accurate.

4. **Individual Responsibility**

- Agency/entity participants must possess clear authority to represent the agency or organization, provide expertise, provide required information in a timely manner (adhering to project deadlines and schedule), participate in all meetings, attend IRWM Plan Update Public Meetings, review and approve technical memorandums (TMs) as necessary and appropriate and review the draft and final IRWM Plan.

- Public members and stakeholders may provide input on the scope of work and participate in general IRWM public meetings, i.e. meetings on the Plan to give input on draft and final versions as well as RWMG meetings.

5. **Operating Guidelines**

Operating Guidelines deal with the following: the team's formal authority and what it may do without permission and what do with permission and with areas of shared responsibilities or areas in which team members are expected to initiate action to support others. Operating guidelines are intended to make the operations of the workgroup as open and fair as possible.

6. **Meeting Protocol**

- Meeting agendas will be prepared distributed prior to the meeting.
- Meetings will be coordinated by and facilitated by SLO District staff and/or its designated agent.
- Progress toward completing work plan tasks will be assured by strict adherence to time frames identified on meeting agendas.
- Meeting materials will be coordinated and distributed ahead of the meeting time.
- Public participants' comments will be scheduled at the beginning of meetings and comment will be limited to 3 minutes.

IV.A Status Reports

Status reports will be produced during the project. The status reports will be produced on regular intervals to provide all entities, including the stakeholders, project information on the status and progress of the Plan update. At a minimum, these reports will contain:

- Project Status on major activities;
- Project Schedule;
- Status of Action Items, if applicable; and
- Future or planned activities

V. External Communications

V.A Public Inquiries

The public is encouraged to participate in the IRWM Plan Update. The NOI, as described above, will be publically distributed and hearings on the Plan will be publically noticed. In between, all meeting information will be posted on the website and available for public viewing and comments. Public comments will be received via an exclusive email address posted on the website and will be answered by designated SLO District staff or their authorized agents.

VI. Communications Management

VI. A. Communication Protocol

This section describes the protocols for the dissemination of project information necessary to manage the amount and type of information that is communicated.

Communication protocols are necessary to properly manage the amount and type of information that will be communicated. Communication protocols are advantageous for a variety of reasons, including, better managing and controlling the flow of project-related information, to minimize misinformation and maximize the sharing of accurate information across the appropriate communication channels, and to provide structure to the formal and informal communications that are shared with external stakeholders.

All IRWM Plan communications related to project-wide status is directed to the SLO District staff and its authorized agents, unless otherwise specified. Because of the broad scope of this project, only those individuals at the project management level will be able to provide a comprehensive and accurate status update on the project as a whole. Project status updates will be disseminated in a monthly basis to all entities and all meeting agendas, materials and action items will be posted on the IRWM website for public viewing and comment.

VI.A.1 Email

This section describes the key rules for use of e-mail, including types of information that can be transmitted via e-mail and level of formality in e-mail.

Electronic mail (E-mail) is used as a means for informal, ad hoc communication between project team members and stakeholders as well as formal communications. Formal e-mails will be limited to meeting announcements and major project milestones.

Appropriate uses of e-mail include alerting entities to meetings, meeting changes, alerting entities to key documents that have been posted on the SLO County website (www.slocountywater.org). General questions and answers from the public should be directed to the dedicated email for information on the Plan Update.

VI.A.2 Communications Tracking and Storage

Written communications received or generated by the project are retained and stored in the project SLO County website (www.slocountywater.org) library and/or document management tool, depending on the format in which they were received. Project e-mail that document decisions or have pertinent value to the project will be stored in the project SLO County website (www.slocountywater.org) library and/or document management tool and retained for historical purposes.

VI.A.3 Communications Changes

Changes to the communication process may be proposed by any of the IRWM Program Participants for consideration and a decision will be made by the SLO District staff or its authorized agents.

VII. Outreach Plan

Effective public involvement and integration is one of the touchstones of a successful IRWM plan. Building trust, developing relationships, and cultivating communication channels is critical for ensuring regional and sub-regional participation and growing multi-benefit, fundable projects.

Every meeting and workshop is an opportunity to increase transparency and inclusivity as well as build partnership, and in that spirit, the stakeholder list will always be open to new stakeholders.

The Outreach Plan will utilize existing groups and communication systems to disseminate information about the IRWM plan, in part relying on groups that have dedicated memberships and similar concerns and/or issues as those addressed in the IRWM plan. Public involvement will be sustained throughout the development of the plan with the intention of forming alliances that further the goals and sustainability of the plan and projects. The paradigm of IRWM meetings and workshops provide a forum in which objectives, targets and goals can be presented, thoroughly vetted and developed. It is also a forum to discuss which projects can be developed to realize IRWMP goals and objectives.

Public involvement will be enhanced and facilitated by the data management system and the other forms of communication discussed in this Plan.

VII.A Stakeholder List

Prior to the March 6, 2013 meeting, reconnaissance will be conducted within the SLO IRWM region to compile a list of all relevant agencies and interest groups, including those statutorily required stakeholders and compare that list with the list that the SLO District maintains. The stakeholder outreach list will inform the public outreach process and serve as a tool moving forward. Stakeholders will also receive updates on the project and plan milestones, funding information, and other appropriate and relevant information. The stakeholders will include (as applicable to the Region):

- Wholesale and retail water purveyors
- Wastewater agencies
- Flood control agencies
- Municipal and county governments and special districts
- Electrical corporations
- Native American tribes
- Self-supplied water users
- Environmental stewardship organizations
- Community organizations
- Industry organizations
- State, federal, and regional agencies or universities
- Disadvantaged community members
- Any other interested group appropriate to the region.

Some agencies or entities that are critical to plan development may be logistically challenged, such as community or neighborhood organizations and disadvantaged communities. As such, a targeted disadvantaged community outreach process is discussed below.

VII.A.I Public and Stakeholder Involvement

The Outreach Plan will lay a solid foundation for regional (and sub-regional) involvement and strategy as well as build overall regional (and sub-regional) capacity. It will also set forth a framework and provide guidance for implementing projects and carrying on the goals of IRWM throughout future years. It is the expressed aim to knit together a core group of active and engaged regional and sub-regional representatives who are motivated and equipped to meet the formidable challenges involved in planning for increased water quality, groundwater protection, stormwater management, water reliability, flood management, water quality, water supply, and equitable environmental benefits.

Apart from building public and institutional capacity, the public and stakeholder involvement will build extra-institutional capacity for overall assimilation into a larger, more water-aware culture that moves beyond traditional alliances to envision a more comprehensive and realistic relationship with the watersheds that the residents of San Luis Obispo County live and play in. The plan will empower those involved by providing self-determination in the future of their water resources and watersheds.

The on-going RWMG Meetings, WRAC meetings and RWMG Working Groups in the sub-regions are the primary way that Interested Stakeholder and public involvement will be solicited and all information will be made available on the SLO County's website. Further, throughout the update of the Plan at key points, the public and stakeholders will be invited to comment on draft items.

VII.A.II DAC Outreach Plan

DWR requires an outreach process that includes disadvantaged community (DAC) outreach. As such, the SLO County IRWM Plan Update will incorporate the input and priorities of the DACs in the region and funnel these into need, priorities, actionable water management strategies, and potentially fundable projects. DACs will be called and invited to participate in the DAC Visioning Workshop/Focus Group discussions detailed below. After initial contact is made, it will be determined by the DAC how they would like to be communicated to, i.e. calls, email. It is understood that there may be technical barriers to communication, so it is important to define what these are and/or may be and plan for alternate ways for communication to flow.

VII.A.II.a Sub-Regional DAC Visioning Workshop/Focus Group

To determine the "Vision" of the project, we need to ask: What is the larger purpose of this project? Why does this project exist? What is the future state that will exist as a result of the actions we take?

The purpose of the workshops and focus groups is to coordinate outreach efforts in a manner that is appropriate for disadvantaged community participants who will be engaged in the planning process. The meetings are intended to provide information and tools to these stakeholders that will allow them to develop projects with the IRWM plan framework that address their specific community priorities and needs. Each of the 3 sub-regional DAC visioning workshop/focus groups will be geographically distributed throughout the sub-region to ensure maximum coverage and participation.

The first step in effective outreach is to identify DACs that have an interest and stake in the planning outcome. This will be accomplished by developing and maintaining a comprehensive listing of

disadvantaged community representatives, and as applicable, community organizations, environmental stewardships organizations, and advocacy groups as part of the overall project stakeholder list. We will build on the existing list of environmental and community stakeholders and identify additional stakeholders for inclusion on the list. Ongoing updates to the list will be made to ensure accurate information is maintained throughout the planning process.

Visioning workshop/focus group in each sub-region for a total of five (5) DAC workshops will be organized in March to promote the active and sustained participation of representatives from disadvantaged communities in project design and formulation. Typical barriers to DAC participation in the IRWM plan process are different from that of other communities and extend well beyond technical issues to involve economic, cultural, and social considerations. Each workshop/focus group will be geographically distributed within the sub-region to ensure the ability of the largest number of DAC stakeholders to participate. The sub-regional meetings will be conducted in a manner consistent with the cultural and language practices of the sub-region. This will include, as necessary and appropriate, bilingual meeting materials and translation, meetings in community centers and other locations frequented by local groups, and meeting scheduling and arrangements designed to maximize participation. We will work with trusted community partners, including community organizations and advocacy groups that can assist with the grassroots participation in the workshops and focus groups.

The five (5) Disadvantaged Community Visioning Workshops and Focus Groups will be publicly noticed. At the outset, these will give specific information on how the IRWM process works is and what is needed for the DAC to actively participate. The visioning workshop will serve both an educational and strategic purpose by giving disadvantaged community representatives the information they need to incorporate their issues and ideas into the overall planning framework and provide them access to the planning process. Meeting attendees will be asked to identify the key water related opportunities and constraints facing their communities and the region as a whole. Participants will be able to discuss any topic they feel is relevant and important to the planning process. The visioning workshop will provide the opportunity to identify disadvantaged community representatives who are interested in participating to a greater degree and who will be best able to represent the DACs' needs. Further the focus group will assist in charting a path forward for streamlined and enhanced DAC communication and involvement.

Appendix D.

Notice of Public Meetings, Comments, and Outreach Material

D – Notice of Public Meetings, Comments and Outreach Material

Table of Contents

D-1 Public Meeting Notices

D-2 Brochures

D-3 List of Attendees and Public Meeting Comments

D-4 Sub-Region Workshop List of Issues and Concerns

D-1 Public Meeting Notices

SAN LUIS OBISPO

North Coast Sub-Regional IRWM Workshop

BACKGROUND

The Integrated Regional Water Management (IRWM) program is used to facilitate regional plans, programs, and projects that promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, and watershed awareness in accordance with State guidelines.

WHEN Tuesday, July 23, 9:00 am - 11:00 am

WHERE Morro Bay Veterans Hall
209 Surf Street, Morro Bay

WORKSHOP TOPICS

- Help define your Sub-Region's priorities
- Discuss water resource management strategies (RMS)
- Review project solicitation and review process

DON'T FORGET

Project/ Program Abstract forms are due by 5:00pm, July 31, 2013 to cberg@co.slo.ca.us, in order to be considered in the IRWM Plan update

SAN LUIS OBISPO COUNTY IRWM PLAN UPDATE

IRWMP VISION

Create a united framework among SLO County Stakeholders for sustainable water resource management.

IRWM MISSION

Facilitate regional plans, programs, and projects to further sustainable water resource management.

WATER SUPPLY

ECOSYSTEM & WATERSHED

GROUNDWATER MONITORING & MANAGEMENT

FLOOD MANAGEMENT

WATER QUALITY

WATER RESOURCES MANAGEMENT & COMMUNICATIONS

slocountywater.org

For more information,
CONTACT
Carolyn Berg
cberg@co.slo.ca.us
(805)781-5252

SAN LUIS OBISPO

North County Sub-Regional IRWM Workshop

BACKGROUND

The Integrated Regional Water Management (IRWM) program is used to facilitate regional plans, programs, and projects that promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, and watershed awareness in accordance with State guidelines.

WHEN Wednesday, July 24, 9:00 am - 11:00 am

WHERE City of Paso Robles Council Chambers
1000 Spring Street, Paso Robles

WORKSHOP TOPICS

- Help define your Sub-Region's priorities
- Discuss water resource management strategies (RMS)
- Review project solicitation and review process

DON'T FORGET

Project/ Program Abstract forms are due by 5:00pm, July 31, 2013 to cberg@co.slo.ca.us, in order to be considered in the IRWM Plan update

SAN LUIS OBISPO COUNTY IRWM PLAN UPDATE

IRWMP VISION

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slocountywater.org

For more information,
CONTACT
Carolyn Berg
cberg@co.slo.ca.us
(805)781-5252

SAN LUIS OBISPO

South County Sub-Regional IRWM Workshop

BACKGROUND

The Integrated Regional Water Management (IRWM) program is used to facilitate regional plans, programs, and projects that promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, and watershed awareness in accordance with State guidelines.

WHEN Tuesday, July 23, 1:00 pm - 3:00 pm

WHERE City of Pismo Beach Council Chambers
760 Mattie Road, Pismo Beach

WORKSHOP TOPICS

- Help define your Sub-Region's priorities
- Discuss water resource management strategies (RMS)
- Review project solicitation and review process

DON'T FORGET

Project/ Program Abstract forms are due by 5:00pm, July 31, 2013 to cberg@co.slo.ca.us, in order to be considered in the IRWM Plan update

IRWMP VISION

Create a united framework among SLO County Stakeholders for sustainable water resource management.

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slocountywater.org

For more information,
CONTACT
Carolyn Berg
cberg@co.slo.ca.us
(805)781-5252

San Luis Obispo County Region
Integrated Regional Water Management Plan

PUBLIC MEETING NOTICE - PROGRAM WORKSHOP

WATER QUALITY

WATER SUPPLY

ECOSYSTEM PRESERVATION & RESTORATION

GROUNDWATER MONITORING & MANAGEMENT

FLOOD MANAGEMENT

The Integrated Regional Water Management (IRWM) San Luis Obispo County Region partners will meet at the December 2011 Water Resources Advisory Committee meeting to discuss:

- -IRWM Plan History
- -IRWM Plan Update Approach
- -Upcoming IRWM Grant Opportunities
- -Planning Solicitation (due December 15, 2011)

The workshop will provide a forum to discuss these topics and receive input from all that have a stake in sustaining the region's water resources.

Come find out how YOU can participate!

PUBLIC MEETING NOTICE

IRWM Program Workshop

Wednesday, December 7, 2011

9:00 AM to 12:00 PM

at the Library Community Room

995 Palm St, San Luis Obispo, CA

For information contact
Courtney Howard
or Carolyn Berg at
(805) 781-5252

slocountywater.org

San Luis Obispo County Region
Integrated Regional Water Management Plan

PUBLIC MEETING NOTICE - PROGRAM WORKSHOP

WATER QUALITY

WATER SUPPLY

ECOSYSTEM PRESERVATION & RESTORATION

GROUNDWATER MONITORING & MANAGEMENT

FLOOD MANAGEMENT

The Integrated Regional Water Management (IRWM) San Luis Obispo County Region partners will meet at the January 2012 Water Resources Advisory Committee meeting to discuss:

-Planning Solicitation Review and Recommendations
-IRWM Plan Update - "Governance" Discussion
-Upcoming IRWM Workshops

The workshop will provide a forum to discuss these topics and receive input from all that have a stake in sustaining the region's water resources.

Come find out how YOU can participate!

PUBLIC MEETING NOTICE

IRWM Program Workshop
Wednesday, January 4, 2012
9:00 AM to 12:00 PM
at the Library Community Room
995 Palm St, San Luis Obispo, CA

For information contact
Courtney Howard
or Carolyn Berg at
(805) 781-5252

slocountywater.org

San Luis Obispo County Region
Integrated Regional Water Management Plan

PUBLIC MEETING NOTICE - PROGRAM WORKSHOP

WATER QUALITY

WATER SUPPLY

ECOSYSTEM PRESERVATION & RESTORATION

GROUNDWATER MONITORING & MANAGEMENT

FLOOD MANAGEMENT

The Integrated Regional Water Management (IRWM) San Luis Obispo County Region partners will meet at the February2012 Water Resources Advisory Committee meeting to discuss:

-Subcommittee Recommendations on Grant Application
-Governance Structure Follow-Up
-Introduce Discussion Topic Schedule

The workshop will provide a forum to discuss these topics and receive input from all that have a stake in sustaining the region's water resources.

Come find out how YOU can participate!

PUBLIC MEETING NOTICE

IRWM Program Workshop
Wednesday, February 1, 2012
9:00 AM to 12:00 PM
at the Library Community Room
995 Palm St, San Luis Obispo, CA

For information contact
Courtney Howard
or Carolyn Berg at
(805) 781-5252

slocountywater.org

San Luis Obispo County Integrated Regional Water Management Plan

"Community Meeting"

Wednesday, March 20, 2013

1:30 pm – 3:30 pm

San Luis Obispo City/County Library Community Room

955 Palm Street, San Luis Obispo

Please join us for this important meeting on the current and future of water in San Luis Obispo and take an active role in planning for your community. We want to hear from you about your water needs, how they can be enhanced and sustained years to come and what needs improvement.

The County Integrated Regional Water Management Plan Update is a joint effort by many stakeholders, like you, with common interests in seeking to enhance and promote sustainable water resources while balancing economic and cultural values, ecosystem restoration and property rights. Your input is needed to benefit future generations in San Luis Obispo. Join in the discussion and help to shape the future!

For more information, please contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Ron Munds, rmunds@slocity.org or Jane Gray, 963.0651 or email jgray@dudek.com

San Luis Obispo County Integrated Regional Water Management Plan

"Community Meeting"

Wednesday, March 20, 2013

9:30 am – 11:30 am

Oceano Community Services District,

1655 Front St, Oceano, CA 93445

Please join us for this important meeting on the current and future of water in Oceano and take an active role in planning for your community. We want to hear from you about your water needs, how they can be enhanced and sustained years to come and what needs improvement.

The County Integrated Regional Water Management Plan Update is a joint effort by many stakeholders, like you, with common interests in seeking to enhance and promote sustainable water resources while balancing economic and cultural values, ecosystem restoration and property rights. Your input is needed to benefit future generations in Oceano.

Join in the discussion and help to shape the future!

For more information, please contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Tom Geaslen, ocsdgm@oceanocsd.org or Jane Gray, 963.0651 or email jgray@dudek.com

Plan Integrado Regional de Administracion de Agua del Condado de San Luis Obispo

“Junta de Comunidad”

Miércoles, Marzo 20, 2013

9:30 am – 11:30 am

Oceano Community Services District,

1655 Front St, Oceano, CA 93445

Unanos por favor para esta junta importante sobre lo corriente y el future de la agua en Oceano y tome una posicion activa en planear para su comunidad. Queremos oir de usted acerca de sus necesidades de agua, como pueden ser aumentados y pueden ser sostenidos anos para venir y lo que necesita mejorar.

La actualizacion del Plan Integrado Regional de Administracion de Agua del Condado es un esfuerzo conjunto con varios accionistas, como usted, con intereses comun para aumentar y promover recursos sostenibles de agua al equilibrar valores economicos y culturales, restauracion de ecosistema y derechos sobre la propiedad. Necesitamos su contribucion para el beneficio de las generaciones futuras en Oceano.

Una en la discussion y ayude a formar el futuro

Para mas informacion por favor contacte Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Tom Geaslen, ocsdgm@oceanocsd.org o Jane Gray, 963.0651, email jgray@dudek.com

San Luis Obispo County Integrated
Regional Water
Management Plan Update
"Community Meeting"

Thursday, March 21, 2013
10:00-12:00
Atascadero Mutual Water Company
5005 El Camino Real
Atascadero, CA 93422

Please join us for this important meeting on the current and future of water in Atascadero and take an active role in planning for your community. We want to hear from you about your water needs, how they can be enhanced and sustained years to come and what needs improvement.

The County Integrated Regional Water Management Plan Update is a joint effort by many stakeholders, like you, with common interests in seeking to enhance and promote sustainable water resources while balancing economic and cultural values, ecosystem restoration and property rights. Your input is needed to benefit future generations in Atascadero. Join in the discussion and help to shape the future!

For more information, please contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, John Neil, jneil@amwc.us, or Jane Gray, 963.0651 or email jgray@dudek.com

San Luis Obispo County Integrated Regional Water Management Plan

"Community Meeting"

Thursday, March 21, 2013

1:00 pm – 3:00 pm

Veteran's Memorial Building

209 Surf Street, Morro Bay 93442

Please join us for this important meeting on the current and future of water in Morro Bay and take an active role in planning for your community. We want to hear from you about your water needs, how they can be enhanced and sustained years to come and what needs improvement.

The County Integrated Regional Water Management Plan Update is a joint effort by many stakeholders, like you, with common interests in seeking to enhance and promote sustainable water resources while balancing economic and cultural values, ecosystem restoration and property rights. Your input is needed to benefit future generations in Morro Bay.

Join in the discussion and help to shape the future!

For more information, please contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Rob Livick, RLivick@morro-bay.ca.us or Jane Gray, 963.0651 or email jgray@dudek.com

San Luis Obispo County Integrated
Regional Water
Management Plan Update
"Community Meeting"

Friday, March 22, 2013
10:00-12:00
Paso Robles City Council Chambers
1000 Spring St., Paso Robles

Please join us for this important meeting on the current and future of water in Paso Robles and take an active role in planning for your community. We want to hear from you about your water needs, how they can be enhanced and sustained years to come and what needs improvement.

The County Integrated Regional Water Management Plan Update is a joint effort by many stakeholders, like you, with common interests in seeking to enhance and promote sustainable water resources while balancing economic and cultural values, ecosystem restoration and property rights. Your input is needed to benefit future generations in Paso Robles. Join in the discussion and help to shape the future!

For more information, please contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Keith Larson, KLarson@prcity.com or Jane Gray, 963.0651 or email jgray@dudek.com

North Coast Sub-Regional IRWM Workshop

Workshop #1

The San Luis Obispo Integrated Regional Water Management Plan (2005) is presently being updated with a grant from the California Department of Water Resources and we need your input!

You are invited to attend the 1st North Coast Sub-Regional Workshop

When: **Monday, March 25, 2013 from 1:00 pm to 3:00 pm**

Where: **Veteran's Memorial Building, 209 Surf Street, Morro Bay 93442**

What: **Participate in defining the goals and objectives for water management in North Coast. Take part in the planning process and also learn about the state's IRWM program and grant opportunities, and the future of water management in California.**

For more information, contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Rob Livick, RLivick@morro-bay.ca.us or visit:

http://www.slocountywater.org

North County Sub-Regional IRWM Workshop

Workshop #1

The San Luis Obispo Integrated Regional Water Management Plan (2005) is presently being updated with a grant from the California Department of Water Resources and we need your input!

You are invited to attend the 1st North County Sub-Regional Workshop

When: **Tuesday, March 26, 2013 from 1:00 pm to 3:00 pm**

Where: **Templeton Community Center, 691 Main Street, Templeton**

What: **Participate in defining the goals and objectives for water management in North County. Take part in the planning process and also learn about the state's IRWM program and grant opportunities, and the future of water management in California.**

For more information, contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Laura Kelsay Edwards, laura@us-ltrcd.orgor visit:

http://www.slocountywater.org

South County Sub-Regional IRWM Workshop

Workshop #1

The San Luis Obispo Integrated Regional Water Management Plan (2005) is presently being updated with a grant from the California Department of Water Resources and we need your input!

You are invited to attend the 1st South County Sub-Regional Workshop

When: **Monday, March 25, 2013 from 10:00 am to 12:00 pm**

Where: **Oceano Community Services District, Oceano Community Services District, 1655 Front Street, Oceano, CA 93445**

What: **Participate in defining the goals and objectives for water management in South County. Take part in the planning process and also learn about the state's IRWM program and grant opportunities, and the future of water management in California.**

For more information, contact Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Tom Geaslen, ocsdgm@oceanocsd.org or visit: http://www.slocountywater.org

Taller Subregional de el Sur de Condado IRWM

Taller #1

El Plan Integrado Regional de Adminastracion de Agua de San Luis Obispo (2005) al momento esta siendo actualizado con un subvencion del Departamento de Recurzos de Agua de California y neccesitamos su opinioin!

Estan invitados a atender el primero Taller Subregional del Sur de Condado

Cuando: **Lunes, Marzo 25, 2013 de 10:00 am a 12:00 pm**

Donde: **Oceano Community Services District, Oceano Community Services District, 1655 Front Street, Oceano, CA 93445**

Que: **Participe en la definicion de las metas Y objetivos para la adminastracion de agua in el sur de condado. Tome parte en el procesos de planar y aprender sobre el programa IRWM del estado y oportunidades de suvencion y el futuro de la adminastracion de agua in California.**

Para mas informacion contacte Carolyn Berg, cberg@co.slo.ca.us, 781-5536, Tom Geaslen, ocsdgm@oceanocsd.org o visite: http://www.slocountywater.org

AD-37
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
MEMORANDUM OF TRANSMITTAL
TO COUNSEL

REQUEST # 2013 (CAL YR) - 57 (#)

(1) DEPUTY COUNSEL	(2) DATE SUBMITTED	(3) DATE ACTION REQUIRED	(4) PUBLIC WORKS CONTACT/PHONE
Erica Stuckey	5/24/13	5/30/13	Carolyn Berg ext.5536

(5) SHORT TITLE: Notice of Intent to Update IRWM Plan - Review and Comment or Approve

(6) REQUESTED ACTION:

- ☐ Approve and Sign Resolution
- ☐ Approve and Sign Ordinance
- ☐ Approve and Sign Contract
- ☐ Approve and Sign Other
- ☐ Write a Resolution
- ☐ Write an Ordinance
- ☐ Write a Contract
- ☒ Provide Written Advice/Opinion
- ☒ OTHER: Notice of Intent to Update IRWM Plan

(7) SUMMARY OF REQUEST:

Review and comment on/edit Notice of Intent to update the San Luis Obispo County Region Integrated Regional Water Management (IRWM) Plan pursuant to CWC 10543 and Government Code 6066.

(8) SPECIAL INFORMATION AND INSTRUCTIONS:

Please let me know if you need any additional information. Also, would this be better suited in a different format than a "press release" format since it is a Notice of Intent? Thanks Erica!

(9) BACKGROUND INFORMATION AND RESEARCH:

See attachments (via email)

(10) OTHER COUNTY DEPARTMENTS OR AGENCIES IMPACTED:

County Clerk, County Public Works Department, and 22 agencies and organizations on the Regional Water Management Group (listed on website:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/)

(11) REASON FOR DATE ACTION REQUIRED:

To issue via Clerk before our June 5th Regional Water Management Group meeting.

(12) LIST OF ATTACHMENTS:

Draft Notice of Intent to Update IRWM Plan
Excerpts of Related California Code

PRESS RELEASE

News Media Contact:
Carolyn Berg
cberg@co.slo.ca.us
(805) 781-5536

March 13, 2013

FOR IMMEDIATE RELEASE

COUNTY WIDE INTEGRATED REGIONAL WATER MANAGEMENT (IRWM) PUBLIC WORKSHOPS TO UPDATE THE REGION'S IRWM PLAN

Members of the public are invited to take part in a series of workshop on the update of the San Luis Obispo County Integrated Regional Water Management (IRWM) Plan.

There will be General Community Meetings to discuss the purposes of the IRWM, the IRWM Plan, the water issues affecting our communities and the future of water resources and water management. These Workshops are on the following dates:

- Wednesday, March 20, 2013, 9:30 am – 11:30 am, Oceano Community Services District, 1655 Front St, Oceano
- Wednesday, March 20, 2013, 1:30 pm – 3:30 pm, San Luis Obispo City/County Library Community Room. 955 Palm Street, San Luis Obispo
- Thursday, March 21, 2013, 10:00 am -12:00 pm, Atascadero Mutual Water Company, 5005 ElCamino Real, Atascadero
- Thursday, March 21, 2013,1:00 pm – 3:00 pm, Veteran's Memorial Building 209 Surf Street, Morro Bay
- Thursday, March 21, 2013, 6:30pm – 8:30 pm , San Miguel Fire Station, 1150 Mission Street, San Miguel
- Friday, March 22, 2013, 10:00-12:00, Paso Robles City Council Chambers 1000 Spring St., Paso Robles

The public workshop will be hosted by San Luis Obispo County. The intent of the Integrated Regional Water Management Program is to promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, efficient urban development, protection of agricultural and watershed awareness.

For more information on the IRWMP, please visit the County's IRWM website: http://www.slocountywater.org or contact Carolyn Berg at (805) 781-5536.

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Contacto de Medios de Noticias: Carolyn Berg
(805) 781-5536, cberg@co.slo.ca.us

COMUNICADO DE PRENSA

PLAN INTEGRADO REGIONAL DE ADMINASTRACION DE AGUA DEL CONDADO (IRWM) JUNTAS PUBLICAS DE INFORMACION CON RESPECTO ACTUALIZACION DEL PLAN DE REGION DE IRWM - Marzo 15, 2013 - Meimbors del publico estan invitados a atender una junta de informacion sobre la actualizacion del Plan Integrado Regional de Administration de Agua (IRWM) del Condado de San Luis Obispo. Temas incluira el proposito del programa y plan de IRWM, como los asuntos de agua que afectan nuestras comunidades seran dirigidos en el plan y como usted pueda ser parte del proceso de actualizacion del plan de IRWM. Estas juntas estan en las fechas siguientes:

- Miercoles, Marzo 20, 2013, 9:30 am – 11:30 am, Oceano Community Services District, 1655 Front St, Oceano
- Miercoles, Marzo 20, 2013, 1:30 pm – 3:30 pm, San Luis Obispo City/County Library Community Room. 955 Palm Street, San Luis Obispo
- Jueves, Marzo 21, 2013, 10:00 am -12:00 pm, Atascadero Mutual Water Company, 5005 El Camino Real, Atascadero
- Jueves, Marzo 21, 2013,1:00 pm – 3:00 pm, Veteran's Memorial Building 209 Surf Street, Morro Bay
- Jueves, Marzo 21, 2013, 6:30pm – 8:30 pm , San Miguel Fire Station, 1150 Mission Street, San Miguel
- Viernes, Marzo 22, 2013, 10:00-12:00, Paso Robles City Council Chambers 1000 Spring St., Paso Robles

Las juntas publicas seran presentados por el Condado de San Luis Obispo. La intencion del Plan Integrado Regional de Admintracion de Agua es para promover y practicar las estrategias administrativas de la agua integrado regional para asegurar los usos sostenibles de agua, suministros seguros de agua, mejor calidad de agua, gerencia ambiental, y conocimiento del la linea divisoria de aguas en conformidad con las pautas del Estado.

Para mas informacion sobre el programa de IRWM, por favor visite el website del Condado de IRWM: http://www.slocountywater.org o contacte Carolyn Berg en (805) 781-5536.

###

PRESS RELEASE

News Media Contact:
Carolyn Berg
cberg@co.slo.ca.us
(805) 781-5536

March 13, 2013

FOR IMMEDIATE RELEASE

COUNTY WIDE INTEGRATED REGIONAL WATER MANAGEMENT (IRWM) PUBLIC WORKSHOPS TO UPDATE THE REGION'S IRWM PLAN

Members of the public are invited to take part in a series of workshops on the update of the San Luis Obispo County Integrated Regional Water Management (IRWM) Plan.

There will be Sub-Regional Workshops to discuss the IRWM Plan Update, the water management issues in particular watersheds, sub-regional objectives and goals for the best management of water resources and the future of water management. These Workshops are being held on the following dates:

- Monday, March 25, 2013, 10:00 am to 12:00 pm Oceano Community Services District, Oceano Community Services District, 1655 Front Street, Oceano
- Monday, March 25, 2013, 1:00 pm to 3:00 pm ,Veteran's Memorial Building, 209 Surf Street, Morro Bay
- Tuesday, March 26, 2013, 1:00 pm to 3:00 pm, Templeton Community Center, 691 Main Street, Templeton

The public workshops will be hosted by San Luis Obispo County. The intent of the Integrated Regional Water Management Program is to promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, efficient urban development, protection of agricultural and watershed awareness.

For more information on the IRWMP, please visit the County's IRWM website: http://www.slocountywater.org or contact Carolyn Berg at (805) 781-5536.

###

Re: Notice of Intent to Update IRWM Plan

Sandy Currens to: Carolyn Berg 06/17/2013 09:22 AM

History: This message has been replied to.

Good Morning, The Notice will be published in the Telegram Tribune on June 20th and 27th, 2013 as a 1/4 page ad. The proof of publication will follow at a later date in July.

Have a good day,
Sandy Currens
Deputy Clerk
County Clerk Recorder
805-788-2789

Website: *www.SLOvote.com*
Like Us: *www.facebook.com/slocountyclerkrec*
Follow Us: *www.twitter.com/slocountyclerk*

Carolyn Berg | Hello, Please publish the attached notice per Cal... | 06/13/2013 05:25:01 PM

From: Carolyn Berg/PubWorks/COSLO
To: Catrina Christensen/ClerkRec/COSLO@Wings, Sandy Currens/ClerkRec/COSLO@Wings
Cc: Dean Benedix/PubWorks/COSLO@Wings, Courtney Howard/PubWorks/COSLO@Wings
Date: 06/13/2013 05:25 PM
Subject: Notice of Intent to Update IRWM Plan

Hello,

Please publish the attached notice per California Water Code 10543 and Government Code 6066 for our "Notice of Intent to Update Integrated Regional Water Management Plan". Size: 1/4 page

Please let me know if you received this request and provide a copy of the proof of publication for my file. I am not in the office tomorrow or Monday, but call my cell phone if you have questions (949 422 3616).

SAP Charge code: 300494.16

Thanks so much,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536
[attachment "NoticeofIntent_SLOCoIRWMPUpdate_20130530 r2.docx" deleted by Sandy Currens/ClerkRec/COSLO] [attachment "NoticeofIntent_SLOCoIRWMPUpdate_20130530 r2.pdf" deleted by Sandy Currens/ClerkRec/COSLO]

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
Paavo Ogren, Director

County Government Center, Room 207 • San Luis Obispo CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

Contact: Carolyn Berg
(805) 781-5536, cberg@co.slo.ca.us

PRESS RELEASE

NOTICE OF INTENT TO PREPARE AN UPDATE TO THE SAN LUIS OBISPO INTEGRATED REGIONAL WATER MANAGEMENT PLAN – June 10, 2013 - Members of the public are invited to take part in public meetings related to the San Luis Obispo County Integrated Regional Water Management (IRWM) Plan update.

NOTICE IS HEREBY GIVEN that the Regional Water Management Group of the San Luis Obispo County IRWM Program intends to prepare an update to the 2007 IRWM Plan. The San Luis Obispo County IRWM Plan Update 2013/14 will be prepared with funding awarded by the California Department of Water Resources (DWR) pursuant to a Proposition 84 Planning grant. Upon completion of the Update, the Plan will be known as the San Luis Obispo County IRWM Plan. The San Luis Obispo County IRWM program is intended to promote implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, efficient urban development, protection of agricultural water uses, drought preparedness, and watershed awareness.

The 2007 IRWM Plan (which was an update to the original 2005 IRWM Plan) includes projects and programs that are designed to meet the region's needs for water supply reliability, environmental protection, water quality, groundwater protection, and flood protection. Since the adoption of the 2007 Plan, a number of the projects identified therein have been completed and new projects have been identified. Eligibility for project funding through the California DWR IRWM program requires plans to be updated to meet new state requirements. The 2007 IRWM Plan will be updated according to Proposition 84 IRWM Guidelines and is expected to be completed and adopted in or about June 2014.

A number of specific regional planning efforts are underway – also funded by the DWR under the Proposition 84 Planning grant. These efforts include: Watershed Management Planning, Identification of basins requiring Salt and Nutrient Management Plans (SNMPs), SNMP Conceptual Basin Model – Santa Maria Valley Groundwater Basin, Model SNMP – Paso Robles Groundwater Basin, Groundwater Basin Model Update – Paso Robles Groundwater Basin, and Regional Recycled Water Planning. These planning studies are being led by various agencies and will be incorporated into the updated San Luis Obispo IRWM Plan.

Meetings are held every two months through the duration of the Plan update.

For more information on the IRWM Program, to see the next scheduled meeting, or to view draft documents, please visit the County's IRWM website: http://www.slocountywater.org. Contact Carolyn Berg at (805) 781-5536 to be added to the Interested Stakeholder email list.

####

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
Paavo Ogren, Director

County Government Center, Room 207 • San Luis Obispo CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

Contacto de Medios de Noticias: Carolyn Berg
(805) 781-5536, cberg@co.slo.ca.us

COMUNICADO DE PRENSA

PLAN INTEGRADO REGIONAL DE ADMINASTRACION DE AGUA DEL CONDADO (IRWM) JUNTAS PUBLICAS DE INFORMACION CON RESPECTO ACTUALIZACION DEL PLAN DE REGION DE IRWM - Marzo 15, 2013 - Meimbors del publico estan invitados a atender una junta de informacion sobre la actualizacion del Plan Integrado Regional de Administration de Agua (IRWM) del Condado de San Luis Obispo. Temas incluira el proposito del programa y plan de IRWM, como los asuntos de agua que afectan nuestras comunidades seran dirigidos en el plan y como usted pueda ser parte del proceso de actualizacion del plan de IRWM. Estas juntas estan en las fechas siguientes:

- Miercoles, Marzo 20, 2013, 9:30 am – 11:30 am, Oceano Community Services District, 1655 Front St, Oceano
- Miercoles, Marzo 20, 2013, 1:30 pm – 3:30 pm, San Luis Obispo City/County Library Community Room. 955 Palm Street, San Luis Obispo
- Jueves, Marzo 21, 2013, 10:00 am -12:00 pm, Atascadero Mutual Water Company, 5005 El Camino Real, Atascadero
- Jueves, Marzo 21, 2013,1:00 pm – 3:00 pm, Veteran's Memorial Building 209 Surf Street, Morro Bay
- Jueves, Marzo 21, 2013, 6:30pm – 8:30 pm , San Miguel Fire Station, 1150 Mission Street, San Miguel
- Viernes, Marzo 22, 2013, 10:00-12:00, Paso Robles City Council Chambers 1000 Spring St., Paso Robles

Las juntas publicas seran presentados por el Condado de San Luis Obispo. La intencion del Plan Integrado Regional de Admintracion de Agua es para promover y practicar las estrategias administrativas de la agua integrado regional para asegurar los usos sostenibles de agua, suministros seguros de agua, mejor calidad de agua, gerencia ambiental, y conocimiento del la linea divisoria de aguas en conformidad con las pautas del Estado.

Para mas informacion sobre el programa de IRWM, por favor visite el website del Condado de IRWM: http://www.slocountywater.org o contacte Carolyn Berg en (805) 781-5536.

###

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Fax (805) 781-1229 email address: pwd@co.slo.ca.us

Contact: Carolyn Berg
(805) 781-5536, cberg@co.slo.ca.us

PRESS RELEASE

COUNTY WIDE INTEGRATED REGIONAL WATER MANAGEMENT (IRWM) PUBLIC WORKSHOPS TO UPDATE THE REGION'S IRWM PLAN – VARIOUS LOCATIONS – March 15, 2013 - Members of the public are invited to take part in a series of workshops on the update of the San Luis Obispo County Integrated Regional Water Management (IRWM) Plan.

There will be Sub-Regional Workshops to discuss the IRWM Plan Update, the water management issues in particular watersheds, sub-regional objectives and goals for the best management of water resources and the future of water management. The first of these workshops are being held on the following dates:

- Monday, March 25, 2013, 10:00 am - 12:00 pm, Oceano Community Services District, 1655 Front Street, Oceano
- Monday, March 25, 2013, 1:00 pm - 3:00 pm, Veteran's Memorial Building, 209 Surf Street, Morro Bay
- Tuesday, March 26, 2013, 1:00 pm - 3:00 pm, Templeton Community Center, 691 Main Street, Templeton

The public workshops will be hosted by San Luis Obispo County. The intent of the Integrated Regional Water Management Program is to promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, and watershed awareness in accordance with State guidelines.

For more information on the IRWM Program, please visit the County's IRWM website: http://www.slocountywater.org or contact Carolyn Berg at (805) 781-5536.

####

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Contact: Carolyn Berg
(805) 781-5536, cberg@co.slo.ca.us

PRESS RELEASE

REGIONAL WATER MANAGEMENT GROUP (RWMG) MEETING

MEETING DETAILS: Regional Water Management Group (RWMG) meeting
WHEN: Wednesday, May 7th 2014
TIME: 10:30 am to 12:30 pm

The focus of the meeting:

- Discuss the Administrative Draft Integrated Regional Water Management (IRWM) Plan
- Review Public Draft IRWM Plan outreach and schedule
- Recommend list of drought grant application suite of projects

For more information on the IRWM Program, please visit the County's IRWM website: http://www.slocountywater.org or contact Carolyn Berg at (805) 781-5536.

#####

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
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County Government Center, Room 207 • San Luis Obispo CA 93408 • (805) 781-5252
Fax (805) 781-122 e-mail address: pwd@co.slo.ca.us

Contact: Carolyn Berg
(805) 781-5536, cberg@co.slo.ca.us

PRESS RELEASE

COUNTY WIDE INTEGRATED REGIONAL WATER MANAGEMENT (IRWM) PUBLIC WORKSHOPS TO UPDATE THE REGION'S IRWM PLAN – VARIOUS LOCATIONS – July 5, 2013 - Members of the public are invited to take part in a third series of workshops on the update of the San Luis Obispo County Integrated Regional Water Management (IRWM) Plan.

The public workshops will be hosted by the Regional Water Management Group (RWMG). As stated in the IRWM Program Vision Statement: the program seeks to create a framework among SLO County Stakeholders for sustainable water resource management. The IRWM program is used to facilitate regional plans, programs, and projects that promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, and watershed awareness in accordance with State guidelines.

The current series of Sub-Regional Workshops will discuss sub-regional IRWM priorities, water resource management strategies, and the water resource management project solicitation and review process. Workshops are being held on the following dates:

- **North Coast Sub-Region:** Tuesday, July 23, 9:00 am - 11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay
- **South County Sub-Region:** Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach
- **North County Sub-Region:** Wednesday, July 24, 9:00 am - 11:00 am, City of Paso Robles Council Chambers, 1000 Spring Street, Paso Robles

For more information on the IRWM Program, please visit the County's IRWM website: http://www.slocountywater.org or contact Carolyn Berg at (805) 781-5536.

####

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DEPARTMENT OF PUBLIC WORKS
Paavo Ogren, Director

County Government Center, Room 207 • San Luis Obispo CA 93408 • (805) 781-5252
Fax (805) 781-1229 email address: pwd@co.slo.ca.us

Contact: Carolyn Berg
(805) 781-5536, cberg@co.slo.ca.us

PRESS RELEASE

COUNTY WIDE INTEGRATED REGIONAL WATER MANAGEMENT (IRWM) PLAN UPDATE, PUBLIC INFORMATION MEETINGS-VARIOUS LOCATIONS - March 15, 2013
- Members of the public are invited to attend an informational meeting on the update of the San Luis Obispo County Integrated Regional Water Management (IRWM) Plan. Topics will include the purposes of the IRWM Program and Plan, how the water issues affecting our communities will be addressed in the Plan, and how you can be a part of the IRWM Plan update process. These meetings are on the following dates:

- Wednesday, March 20, 2013, 9:30 am – 11:30 am, Oceano Community Services District, 1655 Front Street, Oceano
- Wednesday, March 20, 2013, 1:30 pm – 3:30 pm, San Luis Obispo City/County Library Community Room, 955 Palm Street, San Luis Obispo
- Thursday, March 21, 2013, 10:00 am -12:00 pm, Atascadero Mutual Water Company, 5005 El Camino Real, Atascadero
- Thursday, March 21, 2013,1:00 pm – 3:00 pm, Veteran's Memorial Building, 209 Surf Street, Morro Bay
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  1000 Spring Street, Paso Robles

The public meetings will be hosted by San Luis Obispo County. The intent of the Integrated Regional Water Management Program is to promote and practice integrated regional water management strategies to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, and watershed awareness in accordance with State guidelines.

For more information on the IRWM Program, please visit the County's IRWM website: http://www.slocountywater.org or contact Carolyn Berg at (805) 781-5536.

#####

{In Archive} Fw: IRWM - RWMG Meeting on Wed, March 6th, 9 AM - 12 PM, SLO City/Community Library
Carolyn Berg
to:

02/27/2013 02:25 PM
Bcc:
Carolyn Berg
Hide Details
From: Carolyn Berg/PubWorks/COSLO

To:

Bcc: Carolyn Berg/PubWorks/COSLO

Archive: This message is being viewed in an archive.

5 Attachments

SLOC IRWMP Update Schedule - 20130123.pdf
SLOC IRWMP Update Decision Structure 20130123.pdf
SLOC IRWMP Update Process - 20130123.pdf
20130306_IRWM RWMG Mtg - Agenda Final.pdf
Draft CommandOutPlan.pdf

Hi all,

In case you missed last week's email, please see below.

Thanks!
Carolyn

----- Forwarded by Carolyn Berg/PubWorks/COSLO on 02/27/2013 02:24 PM -----

From: Courtney Howard/PubWorks/COSLO
To:
Date: 02/20/2013 04:43 PM
Subject: IRWM - RWMG Meeting on Wed, March 6th, 9 AM - 12 PM, SLO City/Community Library

Hello IRWM Program Participants!

We are looking forward to seeing you all at the upcoming IRWM Regional Water Management Group (RWMG) meeting on Wednesday, March 6th. The meeting will be held at the SLO City/County Library Community Room from 9 AM to 12 PM. The agenda is attached, along with a draft IRWM Communications and Outreach Plan and the graphics requested during the January 23rd meeting.

Please review the draft Communications and Outreach Plan and provide comments at/by the meeting day.

The draft Governance IRWM Plan Section and information to support the "Update Objectives" agenda item will follow in an email on February 27th.

RWMG primary/secondary representatives, please let Carolyn and I know if you intend to come. Interested Stakeholders and the public are welcome to attend.

Best regards,
Courtney Howard, P.E.
Water Resources Engineer
SLO County Public Works Department
(805)781-1016

{In Archive} IRWM - RWMG Meeting on Wed, March 6th, 9 AM - 12 PM, SLO City/Community Library - DOCUMENTS FOR REVIEW!

Carolyn Berg to: 02/27/2013 02:14 PM

Cc: "Cornelius, Michael", Jane Gray, Courtney Howard

Bcc: aharris, laura, lindachipping, mlebrun, Paavo Ogren, rlivick, rlundy, rsalas, smorrow, thomas.tisdel, tlm, "Horton, Wade", ocsdgm, steph, 9467wins, cberg, Courtney Howard, larry.barkley, lidia,

Archive: This message is being viewed in an archive.

Hello again IRWM Program Participants!

Don't forget, next week's IRWM Regional Water Management Group (RWMG) meeting is on **Wednesday, March 6th**, **9 AM to 12 PM** at the **SLO City/County Library Community Room**. Last week you received the agenda and draft IRWM Communications and Outreach Plan. As promised...

- **Prep for Governance Discussion:**
  Please REVIEW the **IRWM MOU** (established/finalized in 2012; attached) and the **Communications and Outreach Plan** (draft). Together these documents will form our Region's Governance structure. It is important that we ensure that the Communications and Outreach Plan is simple yet comprehensive.

- **Prep for Objectives Discussion:**
  Please REVIEW the **draft Goals and Objectives handouts**, based on the 2007 IRWM Plan. Discussion will center on how these might be updated/revised, prioritized, etc.

- **List of Reference Documents:**
  Lastly, please review the **list of reference documents** to see if you know of additional references we should consider and/or if any of these have been updated. This will help to ensure our IRWM Plan update includes the most accurate information available.

RWMG primary/secondary representatives, please let me know if you intend to come. Thank you all so much for your interest and participation!

Best regards,

Carolyn Berg
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

IRWM Website:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/

SLOC IRWMP Update References Feb 2013.pdf SLOCIRWMP Objectives Handout d1.pdf

SLOFCWCD_IRWM MOU signed 20121106.pdf

----- Forwarded by Carolyn Berg/PubWorks/COSLO on 02/27/2013 01:43 PM -----

From: Courtney Howard/PubWorks/COSLO
To:
Date: 02/20/2013 04:43 PM

Subject: IRWM - RWMG Meeting on Wed, March 6th, 9 AM - 12 PM, SLO City/Community Library

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Please review the draft Communications and Outreach Plan and provide comments at /by the meeting day.

The draft Governance IRWM Plan Section and information to support the "Update Objectives" agenda item will follow in an email on February 27th.

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Water Resources Engineer
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[attachment "SLOC IRWMP Update Schedule - 20130123.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "SLOC IRWMP Update Decision Structure 20130123.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "SLOC IRWMP Update Process - 20130123.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "20130306_IRWM RWMG Mtg - Agenda Final.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "Draft CommandOutPlan.pdf" deleted by Carolyn Berg/PubWorks/COSLO]

San Luis Obispo IRWM Subregion Workshops - July 23rd and 24th & RWMG Meeting - August 7th (locations vary)
Carolyn Berg
to:

07/11/2013 09:39 AM
Bcc:
Carolyn Berg
Hide Details
From: Carolyn Berg/PubWorks/COSLO

To:

Bcc: Carolyn Berg/PubWorks/COSLO

3 Attachments

070513NorthCoastFlyer.pdf 070513NorthCountyFlyer.pdf 070513SouthCountyFlyer.pdf

Happy summer, RWMG Members and IRWM Stakeholders!

We have finalized the upcoming IRWM Subregion workshops and RWMG meeting locations, dates and times (see below). Hope to see you all at the workshops.

SUBREGION WORKSHOPS:
Upcoming IRWM Subregion workshops will cover: defining your sub-region's IRWM priorities, discussing water resource management strategies, and considering the water resource management project/program/concept solicitation and review process.

Please join us at your Subregion's workshop:

- **North Coast Subregion Workshop:** Tuesday, July 23rd, 9:00 am - 11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay ***(**NOTE the location change from our tentative location discussed at the last RWMG and WRAC meetings**)***

- **South County Subregion Workshop:** Tuesday, July 23rd, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach
- **North Coast Subregion Workshop:** Wednesday, July 24th, 9:00 am - 11:00 am, City of Paso Robles Council Chambers, 1000 Spring Street, Paso Robles

RWMG MEETING:

Join us at the upcoming RWMG meeting scheduled on Wednesday, August 7th, 9:00 am - 12:00 pm, at the SLO Library Community Room, 995 Palm St, SLO. RWMG members will consider the input from the workshops (e.g., sub-regional IRWM priorities), as well as the results of the project/program solicitation and a proposed review process.

****DON'T FORGET: IRWM PROJECT/ PROGRAM/ CONCEPT ABSTRACTS ARE DUE JULY 31ST!****

Thank you for your input and participation so far!

Cross your fingers for rain today..
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

From: Carolyn Berg/PubWorks/COSLO
To:
Date: 07/16/2013 05:12 PM
Subject: Worksheets for San Luis Obispo IRWM Subregion Workshops - July 23rd and 24th & RWMG Meeting - August 7th (locations vary)

Hello again RWMG Members and IRWM Stakeholders!

We are looking forward to seeing you at next week's IRWM Subregion Workshops.

Several stakeholders have contacted me noting that they cannot attend their respective subregion workshop. If you cannot attend, there are a few other options:

- Provide your input on the initial list of Subregion Priorities via email *(see attached, find the worksheet for your subregion)*
- Attend another subregion's workshop *(Note that their discussions will be focused on that particular subregion and its priorities)*
- Attend the RWMG meeting on August 7th for the overview discussion

Thank you for your support and participation so far. Enjoy the rest of your week!

Best regards,

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

IRWM Meetings Website:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Meetings/

{In Archive} Fw: Worksheets for San Luis Obispo IRWM Subregion Workshops - July 23rd and 24th & RWMG Meeting - August 7th (locations vary)

Carolyn Berg to: 07/18/2013 04:15 PM

Bcc: 9467wins, aaroncfloyd, ahalligan, aharris, bfine, bill.garfinkel, calakel, cberg, choward, danielb, eeldridge, john, kailad, klarson, larry.barkley, laura, lidia, lindachipping, lja4163, marylucey15,

Archive: This message is being viewed in an archive.

Hello RWMG Member and IRWM Stakeholders!

One last email before next week's Subregional IRWM Workshops. We created an **editable electronic pdf form** to help make it easier for you to fill out the Subregional Priorities worksheets. Please visit the IRWM website to download the editable pdf form for your subregion (look in the box titled "Subregional Workshops & Meetings" under "Upcoming Meeting").

http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Meetings/

If you prefer, you can fill it out electronically, save it and email it back to me, or print it and bring it to the workshop. We will also have hard copies available at the meeting.

Thanks to the several Stakeholders for suggesting the creation of the editable form!

All the best,

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

----- Forwarded by Carolyn Berg/PubWorks/COSLO on 07/18/2013 04:01 PM -----

From: Carolyn Berg/PubWorks/COSLO
To:
Date: 07/16/2013 05:12 PM
Subject: Worksheets for San Luis Obispo IRWM Subregion Workshops - July 23rd and 24th & RWMG Meeting - August 7th (locations vary)

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(805) 781- 5536

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[attachment "North Coast SubRegion Priorities 20130716 sm.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "North County SubRegion Priorities 20130716 sm.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "South County SubRegion Priorities 20130716 sm.pdf" deleted by Carolyn Berg/PubWorks/COSLO]

----- Forwarded by Carolyn Berg/PubWorks/COSLO on 07/16/2013 04:59 PM -----

From: Carolyn Berg/PubWorks/COSLO
To:
Date: 07/11/2013 09:39 AM
Subject: San Luis Obispo IRWM Subregion Workshops - July 23rd and 24th & RWMG Meeting - August 7th (locations vary)

Happy summer, RWMG Members and IRWM Stakeholders!

We have finalized the upcoming IRWM Subregion workshops and RWMG meeting locations, dates and times (see below). Hope to see you all at the workshops.

SUBREGION WORKSHOPS:
Upcoming IRWM Subregion workshops will cover: defining your sub-region's IRWM priorities, discussing water resource management strategies, and considering the water resource management project/program/concept solicitation and review process.

Please join us at your Subregion's workshop:

- **North Coast Subregion Workshop:** Tuesday, July 23rd, 9:00 am - 11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay
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Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
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(805) 781- 5536

[attachment "070513NorthCoastFlyer.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "070513NorthCountyFlyer.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "070513SouthCountyFlyer.pdf" deleted by Carolyn Berg/PubWorks/COSLO]

{In Archive} RWMG Meeting Agenda - August 7th, 9:00 am - 12:00 pm, at the SLO Library Community Room, 995 Palm St, SLO

Carolyn Berg to: 08/02/2013 11:44 AM

Bcc: cberg, Courtney Howard, lidia, MCornelius, jgoetz, Jane Gray, ralmy, psorensen, johnhollenbeckpe, Cherie Du, 9467wins, aaroncfloyd, ahalligan, aharris, bfine, bill.garfinkel, calakel, cberg,

Archive: This message is being viewed in an archive.

Greetings RWMG Members and Interested Stakeholders!

Thank you to all who attended the July 2013 IRWM Subregion Workshops - they were quite a success! - and to all who submitted project/ program abstracts by July 31st.

Please Join us for the August 7th RWMG MEETING:

The RWMG meeting is scheduled on Wednesday, August 7th, 9:00 am - 12:00 pm, at the SLO Library Community Room, 995 Palm St, SLO. RWMG members will consider the input from the workshops (e.g., sub-regional IRWM priorities), results of the project/program solicitation and a proposed review process, as well as be introduced to the approach used to conduct the required climate change analysis.

We look forward to seeing you at the meeting! Enjoy your weekend.

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

RWMG Agenda 2013.08.07.pdf

----- Forwarded by Carolyn Berg/PubWorks/COSLO on 08/02/2013 11:35 AM -----

From: Carolyn Berg/PubWorks/COSLO
To:
Date: 07/11/2013 09:39 AM
Subject: San Luis Obispo IRWM Subregion Workshops - July 23rd and 24th & RWMG Meeting - August 7th (locations vary)

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Veterans Hall, 209 Surf Street, Morro Bay ***(**NOTE the location change from our tentative location discussed at the last RWMG and WRAC meetings**)***

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Carolyn

Carolyn Berg, P.E.
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[attachment "070513NorthCoastFlyer.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "070513NorthCountyFlyer.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "070513SouthCountyFlyer.pdf" deleted by Carolyn Berg/PubWorks/COSLO]

{In Archive} IRWM Website Updates: 8/7 RWMG Presentation (posted), Project Abstracts Received (posted), Draft Project Review White Paper (posted), Draft IRWM Sections (to be posted next week) - Public Comment until 9/13

Carolyn Berg to: 08/16/2013 07:09 PM

Bcc: aaroncfloyd, ahalligan, aharris, bfine, bill.garfinkel, calakel, cberg, choward, danielb, eeldridge, john, kailad, klarson, larry.barkley, scott.buffaloe, laura, lidia, lindachipping, lja4163, marylucey15,

Archive: This message is being viewed in an archive.

Happy Friday, IRWM RWMG members and friends!

As promised at the 8/7 RWMG meeting, the presentation slides and IRWM project abstracts received have been posted the website. Look under RWMG "Past Meetings": http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Meetings/

We have also posted the draft IRWM Project Characterization, Solicitation and Review Methodology White Paper for public comment. Please respond by September 13th (via email to me). This draft is available online. Look under "IRWM Draft Sections - Open for Comment": http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/

My apologies for the delay, but the draft Climate Change and Resource Management Strategies sections will be posted early next pending minor editing.

Thank you all for your interest and participation! We look forward to hearing from you on our draft documents, and to seeing you at the 10/2/13 RWMG meeting (9am to 12pm, SLO Library Community Room).

Best regards,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

SAVE THE DATE: Join us for the 10/2/2013 RWMG Meeting - 9am to 12 pm - SLO County Library Community Room
Carolyn Berg
to:

09/11/2013 12:04 PM
Bcc:
Carolyn Berg
Hide Details
From: Carolyn Berg/PubWorks/COSLO

To:

Bcc: Carolyn Berg/PubWorks/COSLO

2 Attachments

CC-ForumAnnouncement.pdf CC-ForumAgenda-9.13.13.pdf

Hello RWMG Members and Friends!

Fall is a busy time for water resources - this email highlights a few upcoming events and deadlines (details below):

1. **Comments on draft IRWM Plan sections due 9/13/13 (Friday the 13th!)**
2. **DWR's "Central Coast Regional Forum" - 9/13/13, 9:30 am- 12:30 pm, County Government Center, 1055 Monterey St, Room D161/162, SLO**
3. **IRWM RWMG meeting - 10/2/13, 9am- 12pm, SLO Library Community Room**
4. **DWR's draft IRWM Plan Review Process was released! Comments due by October 18th, 5:00 PM.**

Event/ Deadline Details:

1. Don't forget that comments on the following sections are **due this Friday, September 13th** (via email to cberg@co.slo.ca.us or mail):

- Draft IRWM "Project Characterization, Solicitation and Prioritization Methodology White Paper"
- Draft climate change section
- Draft resource management strategies (RMS) section

2. Join us at the State Department of Water Resources' "Central Coast Regional Forum" this **Friday, September 13th, 9:30 am - 12:30 pm at the County Government Center on 1055 Monterey St, San Luis Obispo (Room D161/162, agenda attached).**

- Meeting goals are to: Finalize information for the Central Coast Regional Report; Provide overview of the Public Review Draft for Update 2013 of the California Water Plan; Share updates on other State programs; and Evaluate regional outreach approach.
- Please feel free to pass the attached announcement and agenda on to other stakeholders or to post in your community.

3. It's that time again - please mark your calendars for the upcoming **IRWM RWMG Meeting on October 2nd, 9:00 AM to 12:00 PM**, at the SLO County Library Community Room. An agenda will be sent out in a few weeks. The main meeting objectives are to:

- Overview of DWR's draft IRWM Guidelines amendment (defining IRWM Plan Review Process, #4 below)
- Finalize the draft IRWM project review/ solicitation process, and ranking (white paper)
- Finalize the draft climate change section
- Finalize the draft RMS section
- Introduce the draft finance section & provide worksheets to help collect more information
- Introduce the draft data management section & provide worksheets to help collect more information

4. Check out DWR's draft addendum to the 2012 IRWM Guidelines, which describes DWR's proposed IRWM Plan Review Process. **Comments are due October 18th, 5:00 pm** (via email to Ted Daum: Theodore.Daum@water.ca.gov)**.** The draft can be found at: http://www.water.ca.gov/irwm/grants/guidelines.cfm

Check out our website for other State news, funding opportunities, etc.:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/

Best regards,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

{In Archive} SAVE THE DATE: Join us for the 10/2/2013 RWMG Meeting - 9am to 12 pm - SLO County Library Community Room

Carolyn Berg to: 09/11/2013 12:04 PM

Bcc: aaroncfloyd, ahalligan, aharris, bfine, bill.garfinkel, calakel, cberg, choward, danielb, eeldridge, john, kailad, klarson, larry.barkley, scott.buffaloe, laura, lidia, lindachipping, lja4163, marylucey15,

Archive: This message is being viewed in an archive.

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Check out our website for other State news, funding opportunities, etc.: http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/

Best regards,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer

(805) 781- 5536

CC-ForumAnnouncement.pdf

CC-ForumAgenda-9.13.13.pdf

{In Archive} RWMG Meeting Agenda: Oct 2nd, 9am to 12pm - RWMG Members and Alternates Please RSVP !

Carolyn Berg to: 09/27/2013 06:41 PM

Bcc: cberg, Courtney Howard, lidia, MCornelius, jgoetz, Jane Gray, ralmy, psorensen, johnhollenbeckpe, Cherie Du, aaroncfloyd, ahalligan, aharris, bfine, bill.garfinkel, calakel, cberg, choward,

Archive: This message is being viewed in an archive.

Hello IRWM RWMG Members and Stakeholders,

Attached is the meeting agenda for the RWMG meeting on October 2nd, 9:00 AM to 12:00 PM, as well as a staff report associated with Agenda Item #2.

The final sections for review will be posted to the website this evening.

Meeting Materials:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Meetings/

Draft and Final IRWM Plan Sections:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/

We look forward to seeing you next week! Please let me know if you plan to attend (especially RWMG Members).

Best regards,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

20131012 IRWM RWMG Mtg Agenda.pdf 2013.10.02 RWMG_Agenda Item #2.pdf

{In Archive} IRWM - Follow Up to RWMG Meeting: Project Long Form (draft due 10/15), Data Management and Finance Worksheets (due 10/11), DWR Round 2 Grant Evaluation

Carolyn Berg to: 10/04/2013 07:26 AM

Cc: "Goetz, Jonathan", "Cornelius, Michael"
cberg, Courtney Howard, lidia, MCornelius, jgoetz, Jane Gray,
Bcc: ralmy, psorensen, johnhollenbeckpe, Cherie Du, aaroncfloyd,
ahalligan, aharris, bfine, bill.garfinkel, calakel, cberg, choward,

Archive: This message is being viewed in an archive.

Hi IRWM RWMG Members and Stakeholders,

Thank you to all who attended our RWMG meeting yesterday! Your feedback and input is helping to shape a comprehensive IRWM Plan update.

Follow up to our RWMG meeting:

- **Data Management Worksheets, due Oct. 11th** - Fill out corresponding worksheet for your Sub-Region to help ensure the plan reflects your Sub-Region's efforts and needs. *pdf file is provided due to size.
- **Finance Worksheets, due Oct. 11th** - Same as above. Editable Word file is provided.
- **Draft/ Initially Sorted List of Projects/Programs/Concepts** (that submitted the Phase 1b Objectives Worksheet) - note the second to last column, "prioritization category", which notes whether the project appears to be a low or medium or high "readiness-to-proceed" (or start being implemented). The last column, "total point score", is based upon each applicant's self-assessment of how well their project ties to IRWM goals and objectives. The scores, readiness-to-proceed and potential integration of projects will be considered by the RWMG Working Group on October 16th.
- **IRWM Phase 2 Project Long Form, draft and backup documents due Oct. 15th** – Completion of this form is especially encouraged for implementation projects and programs having a "high" or "medium" readiness to proceed, though all projects/ programs that have submitted a Phase 1a A bstract and Phase 1b Objectives Worksheet are also welcome to submit this form for consideration and to have on file. The Phase 2 Project Long Forms are essential to the RWMG Working Group's identification of the high priority projects and programs, and to achieving a successful IRWM Plan. ***Note: Our project team will follow up next week with a help page to this document as well as a list of backup documentation/ information that can be submitted with the long form.*

- DWR Evaluation of Round 2 Grant Application, FYI/ no action - see attached or visit DWR website: http://www.water.ca.gov/irwm/grants/implementation.cfm

List of links to SLO IRWM webpages:
Draft IRWM Plan Sections:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/
Meetings/ Workshops:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Meetings/
General IRWM Page:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/

Enjoy your weekend!

Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

P84R2Imp_SLOCountyFCWCD.pdfFinance Strategy Questions South County Oct Meeting 20130924.docx

Finance Strategy Questions North County Oct Meeting 20130924.docx

Finance Strategy Questions North Coast Oct Meeting 20130924.docx

Data Management Questions South County Oct Meeting 20130924.pdf

Data Management Questions North County Oct Meeting 20130924.pdf

Data Management Questions North Coast Oct Meeting 20130924.pdf ProjRnkg_List20131002-all.pdf

ProjSolicForm_Full Version 20131003.xlsm

{In Archive} Overview of IRWM Project Integration Results & Full Project List - Submit Comments by Nov 26th 5:00 PM

Carolyn Berg to: 11/13/2013 06:27 PM

Bcc: cberg, Courtney Howard, lidia, MCornelius, jgoetz, Jane Gray, ralmy, psorensen, johnhollenbeckpe, Cherie Du, aaroncfloyd, ahalligan, aharris, bfine, bill.garfinkel, calakel, cberg, choward,

Archive: This message is being viewed in an archive.

Happy autumn IRWM RWMG Members and Interested Stakeholders!

At the October 2nd RWMG meeting, our team presented the IRWM review process and resulting project list. Various integration opportunities were noted at that meeting. The RWMG asked the RWMG Working Group (and Project Sponsors) to meet and integrate/ finalize the IRWM Plan project list.

The RWMG Working Group held that public meeting on October 16th. This email provides an overview of the resulting IRWM Project List (includes both the Full Project List and Project Short List) (see **attached**). *Note: pages 1-15 include the briefing report, while pages 16-28 include attachment documents.* The purpose of this overview is to:

- Seek input on status of 2007 IRWM Plan project list
- Inform the region's stakeholders of the project selection and integration results
- Solicit comments regarding the content for either the final full and/or short project lists
- Solicit comments providing additional specificity and technical accuracy to the project descriptions and their impacts and benefits.
- Provide a brief summary of how the project short list (and its project "elements") help meet the State IRWM Guidelines

Please submit all comments to myself and Jon Goetz (jgoetz@geiconsultants.com) no later than 5:00 pm on Tuesday, Nov. 26th.

Keep in mind, this is just a summary document of recent integration efforts. The IRWM Plan project review section (previously approved) will incorporate this project list. Related draft IRWM Plan sections can be found at:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/

As always, thank you for your efforts and participation! Your regional plan relies on the participation and support received from all members and stakeholders.

Happy Thanksgiving,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

Draft_IRWMProjBriefingRpt_20131112.pdf

More Funding Opportunities: November 2013 - Nearly $145 Million in Funding and Technical Assistance Available for State, Local, and Tribal Governments
Carolyn Berg
to:

11/22/2013 10:14 AM
Bcc:
Carolyn Berg
Hide Details
From: Carolyn Berg/PubWorks/COSLO

To:

Bcc: Carolyn Berg/PubWorks/COSLO

Good morning IRWM Interested Stakeholders!

One more series of funding opportunities for you to look into.

....Looks like our rain dances finally paid off (a little bit)!

Best,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

From: epa-state-local-climate-energy@lists.icfwebservices.com [mailto:epa-state-local-climate-energy@lists.icfwebservices.com]
Sent: Thursday, November 14, 2013 9:25 AM
Subject: November 2013 – Nearly $145 Million in Funding and Technical Assistance Available for State, Local, and Tribal Governments

November 2013 – Nearly $145 Million in Funding and Technical Assistance Available for State, Local, and Tribal Governments

Nearly $145 million of funding and technical assistance is available for state, local, and tribal governments from the U.S. Bureau of Indian Affairs, Federal Transit Administration (FTA), Corporation for National and Community Service (CNCS), the National Endowment for the Arts, the Forest Service, Environmental Protection Agency (EPA), Wells Fargo and the National Fish & Wildlife Foundation, and Georgetown University that can be used to support climate and energy initiatives, including transit resiliency, green infrastructure, sustainable communities, coastal resiliency, and energy efficiency. For full eligibility and application details, please visit the links provided below.

In addition, please visit the calendar of 2013 EPA grant opportunities that may be of particular interest to communities.

*****Bureau of Indian Affairs 2013 Tribal Climate Change Adaptation Grant Program - $600,000**
Application Due: November 29, 2013
Eligible Entities: Federally Recognized Tribes and inter-tribal organizations

The Bureau of Indian Affairs (BIA) has made available competitive grants for tribal adaptation, training, and tribal travel support to participate in technical training, workshops, forums, and cooperatives. Grants in the following categories will be considered for funding: Category I) Design a series of tribal workshops to support tribal leaders/climate change coordinators/planners to gain the skills needed to guide a tribal government level climate adaptation plan; Category II) Development of tribal government climate adaptation plans, vulnerability assessments, or data analysis that supports multiple tribes. Category III) Travel support to attend technical workshops or to participate in cooperative climate change adaptation efforts.

For more information, visit the request for proposals.

*****FTA Innovative Safety, Resiliency, and All-Hazards Emergency Response and Recovery Research Demonstrations – $29 million**
Application Due: December 2, 2013
Eligible Entities: State and local governmental entities; providers of public transportation; departments, agencies, and instrumentalities of the Government including Federal laboratories; private or non-profit organizations; institutions of higher education; and technical and community colleges

The FTA announces the availability of funds for cooperative agreements to engage in the demonstration of innovative technologies, methods, practices, and techniques in three areas: (1) Operational safety, (2) infrastructure or equipment resiliency, and (3) all-hazards emergency response and recovery methods. Example demonstration projects include building resiliency of transit systems to flooding and high temperatures.

For more information, visit the grant opportunity synopsis.

*****Corporation for National and Community Service's AmeriCorps State and National Grants – Total funding available TBD**
Notice of Intent Due: December 11, 2013
Application Due: January 22, 2014
Eligible Entities: Government entities within states or territories; Tribes; public or private nonprofit organizations; institutions of higher education; labor organizations; partnerships and consortia

The AmeriCorps State and National Grants provide funding to engage AmeriCorps members in service interventions strengthen communities. Focus areas for the grants include: Disaster Services, Economic Opportunity, Education, Environmental Stewardship, Healthy Futures, and Veterans and Military Families. Grants may be used to provide support for direct services that contribute to increased energy and water efficiency, renewable energy use, or improving at-risk ecosystems.

For more information, visit the AmeriCorps Grants webpage.

*****Wells Fargo and the National Fish & Wildlife Foundation Environmental Solutions for Communities Grants Program – Grants ranging from $25,000 to $100,000 each**
Application Due: December 16, 2013
Eligible Entities: State, tribal, and local governments; educational institutions; and non-profit 501(c) organizations

Wells Fargo and the National Fish & Wildlife Foundation seek to promote sustainable communities through Environmental Solutions for Communities by supporting highly-visible projects that link economic development and community well-being to the stewardship and health of the environment. Funding priorities include 'greening' traditional infrastructure and public projects such as storm water management and flood control, urban forestry, and education and training of community leaders on sustainable practices.

For more information, visit the request for proposals.

*****Georgetown Climate Center In-kind Legal and Policy Support for Adaptation Projects**
Application Due: January 3, 2014
Eligible Entities: Government entities, NGOs working with government entities

The Georgetown Climate Center (GCC) has released an application to provide in-kind legal and policy support for state and local adaptation projects. GCC provides assistance to state and local communities that are preparing for and responding to the impacts of climate change. GCC is seeking projects that meet certain criteria, including projects: that address impacts or sectors including coastal, urban heat, transportation, water supply, water quality, and/or stormwater and wastewater management; with high likelihood of being implemented; and with high transferability of findings. Examples of previous GCC projects include model codes, analyses of legal authority, toolkits, and more. This assistance is made possible by the support of the Kresge Foundation.

For more information, visit the application webpage.

*****National Endowment for the Arts FY 2014 Our Town Initiative – Grants ranging from $25,000 to $200,000 each**
Application Due: January 13, 2014
Eligible Entities: All applications must involve two primary partners: a local government entity and a nonprofit organization. Local governments include counties, parishes, cities, towns, villages, or federally recognized tribal governments. Local arts agencies or other departments, agencies, or entities within an eligible local government may submit the application on behalf of that local government.

The National Endowment for the Arts will provide a limited number of grants, ranging from $25,000 to $200,000, for creative placemaking projects that contribute toward the livability of communities and help transform them into lively, beautiful, and sustainable places with the arts at their core. The Our Town initiative will invest in creative and innovative projects in which communities, together with their arts and design organizations and artists, seek to improve their quality of life, foster stronger community identity and a sense of place, and revitalize economic development.

For more information, visit the grant opportunity webpage.

*****The Forest Service's Community Forest and Open Space Program – $4 million**
Application Due: January 15, 2014
Eligible Entities: Local governments, federally recognized tribes and Alaskan Native Corporations, and non-profits who are eligible to hold title to land for conservation purposes.

The Community Forest Program is a grant program that authorizes the Forest Service to provide financial assistance to establish community forests that provide continuing and accessible community benefits. Community forests provide many benefits such as protection of habitat, water quality, and other environmental benefits, and they can provide economic benefits through timber resources. Community Forests have also long been sites for environmental and cultural education.

For more information, visit the opportunity synopsis.

*****EPA Indoor Air and Climate Change – $4.5 million**
Application Due: January 23, 2014
Eligible Entities: State and local governments, Federally Recognized Indian Tribal Governments, U.S. territories or possessions, and public and private nonprofit institutions/organizations located in the U.S.

As part of its Science to Achieve Results (STAR) program, the EPA is seeking applications proposing research to improve understanding of the effects of climate change on indoor air quality and the resulting health effects. EPA is interested in supporting research that will explore the anticipated effects of climate change on indoor air quality directly through a variety of mechanisms, and indirectly through adaptations in building use and design.

For more information, visit the funding opportunity description.

*****NFWF 2013 Hurricane Sandy Coastal Resiliency Competitive Grants Program – $100 million**

Application Due: January 31, 2014
Eligible Entities: Local governments and agencies, recognized tribes, state government agencies, non-profit 501(c) organizations, and academic institutions.

Marking the one-year anniversary of Hurricane Sandy, the U.S. Department of the Interior launched the Hurricane Sandy Coastal Resiliency Competitive Grant Program. The program will use competitive grants to award funding for science-based solutions by states, local communities, non-profit organizations, and other partners to help restore key habitats and bolster natural systems, enabling these areas to withstand the impacts and better protect local communities from future storms.

For more information, visit the program webpage.

*****Georgetown University Energy Prize –$5 million**
Letters of Intent Due: February 2014
Eligible Entities: For this competition, a "community" is defined geographically by the limits of a municipality – a town, city, or county that has corporate status and local government. All small to medium municipalities in the U.S.A. with populations between 5,000 and 250,000 are eligible to apply.

The Georgetown University Energy Prize is a competition in which communities will be challenged to work together with their local governments and utilities in order to develop and begin implementing plans for innovative, replicable, scalable, and continual reductions in the per capita energy consumed from local natural gas and electric utilities. Participating communities will be asked to develop a long-term energy efficiency plan and to demonstrate initial effectiveness and sustainability over a two-year period. Participating communities will benefit from access to various resources and the winning community will receive $5 million, which will help to support their continuing community-based energy efficiency efforts. Interested communities are encouraged to submit a non-binding letter of intent as soon as possible.

For more information, visit the energy prize website.

IRWM 2 Great Opps - (Grower Workshop Opportunities - Nutrient Management/Fertigation/Backflow and Cover Crops) & (Five Star and Urban Waters Restoration Grant Program)

Carolyn Berg to: 11/22/2013 09:40 AM
Bcc: Carolyn Berg

Good morning IRWM Interested Stakeholders!

There are a few great opportunities I wanted to pass on, if you didn't already see Santa Barbara IRWM's emails this morning. See two emails and attachments below related to:

- Opportunities for nutrient management and water quality
- Grant opportunity for water quality, watershed and habitat health and restoration in urban areas.

Good luck everyone! Happy Thanksgiving!

Wishing you and your families the best,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

From: lyris@swrcb18.waterboards.ca.gov [mailto:lyris@swrcb18.waterboards.ca.gov]
Sent: Friday, November 22, 2013 9:00
To: Jane Gray
Subject: Grower Workshop Opportunities - Nutrient Management/Fertigation/Backflow and Cover Crops

Interested Parties:
Attached is information for two upcoming grower workshop opportunities provided by public or private industry consultants and technical assistance providers:

1. December 10 – Elks Lodge, Santa Maria, CA

Topic: Fertigation, Nutrient Management, and Backflow prevention Devices
Host: California Association of Pest Control Advisors (CAPCA), CSU Fresno Center for Irrigation Technology, and the Central Coast Water Board

2. December 12 – Rural Development Center, Salinas, CA

Topic: Cover Crop Basics for the Central Coast
Host: Agriculture and Land-Based Training Association (ALBA)

Growers and their staff are encouraged to take advantage of these training and education opportunities. For additional details, please see the attached brochures or contact the workshop host.
Thank you

From: Piziali, Jamie [mailto:Piziali.Jamie@epa.gov]
Sent: Tuesday, November 19, 2013 12:56 PM
To: Green Stream List
Subject: [greenstream] Five Star and Urban Waters Restoration Grant Program

GreenStream:

The following Request For Proposal was recently announced by National Fish and Wildlife.

The Five STAR and Urban Waters fund was created in FY2013 by joining EPA's long standing and very popular Five Star Program with Urban Waters Program funding into one RFP that represents a public-private partnership

leveraging federal funding 2:1. The Five Star/Urban Waters Restoration Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, forest, riparian and coastal habitat restoration, stormwater management, outreach and stewardship with a particular focus on water quality, watersheds and the habitats they support especially those found in urban areas. The RFP can be found at: http://www.nfwf.org/fivestar/Pages/home.aspx

More information from the website:

Five Star and Urban Waters Restoration Grant Program

The Five Star and Urban Waters Restoration Program seeks to develop nation-wide-community stewardship of local natural resources, preserving these resources for future generations and enhancing habitat for local wildlife. Projects seek to address water quality issues in priority watersheds, such as erosion due to unstable streambanks, pollution from stormwater runoff, and degraded shorelines caused by development.

The program focuses on the stewardship and restoration of coastal, wetland and riparian ecosystems across the country. Its goal is to meet the conservation needs of important species and habitats, providing measurable and meaningful conservation and educational outcomes. The program requires the establishment and/or enhancement of diverse partnerships and an education/outreach component that will help shape and sustain behavior to achieve conservation goals.

Funding priorities for this program include:

- On-the-ground wetland, riparian, in-stream and/or coastal habitat restoration
- Meaningful education and training activities, either through community outreach, participation and/or integration with K-12 environmental curriculum
- Measurable ecological, educational and community benefits
- Partnerships: Five Star projects should engage a diverse group of community partners to achieve ecological and educational outcomes.

Jamie Piziali
US EPA - Office of Wastewater Management
Green Infrastructure Program

202-564-1709 piziali.jamie@epa.gov

ALBA_CoverCrop_final_Dec12.pdf Central Coast Water 12 10 13.pdf

Public Comments due to RCDs by Jan 20, 2014 - Draft Regional Watershed Management Planning & Instream Flow Assessment Documents
Carolyn Berg
to:

12/22/2013 09:45 PM
Bcc:
Cherie Du
Hide Details
From: Carolyn Berg/PubWorks/COSLO

To:

Bcc: Cherie Du/PubWorks/COSLO

IRWM RWMG and Interested Stakeholders,

***Email sent notifying you of local Resource Conservation Districts (RCDs) call for public comments. Note: public comments should be sent to the RCD (not to me) as noted below.*

The local RCDs were awarded Prop 84 Planning Grant funding to conduct local Watershed Management Planning efforts. The RCDs invite you to provide comment and help to improve the draft documents over the next month. At this time the RCDs are requesting feedback on the Watershed Snap Shots and the Instream Flow Study components. **All comments must be received by CSLRCD's Project Manager Nicole Smith at nsmith@coastalrcd.org by 5pm on January 20, 2014 and include the reference or subject "Public Comment – Watershed Project".**

Through the IRWMP Update, the RCDs of San Luis Obispo County have been leading a watershed planning effort that includes watershed snap shots characterizing each watershed, a data gap analysis, a draft methodology for evaluating conservation countywide, a watershed information website and an instream flow study. The watershed snapshots and instream flow assessment reports can be found at the **"Watershed Management Planning"** link in the **"Planning Grants"** box at the bottom of the following web page:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/

Documents open for public comment include:
Watershed Snap Shots:

- Table of Contents (to see what watersheds are included in the three subregional documents below): http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Watershed%20Planning/pdf/TOC_Watershed%20Snap%20Shots.pdf
- North Coast Watersheds: http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%

20Management%20Plan/Watershed%20Planning/pdf/TOC_Watershed%20Snap%20Shots.pdf

- North County Watersheds: http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Watershed%20Planning/pdf/Watershed%20Snapshot_North%20County%20Consolidated.pdf
- South County Watersheds: http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Watershed%20Planning/pdf/Watershed%20Snapshot_North%20County%20Consolidated.pdf

San Luis Obispo County Instream Flow Assessment

- Regional Instream Flow Assessment Report: http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Watershed%20Planning/pdf/Watershed%20Snapshot_North%20County%20Consolidated.pdf
- Interactive Map of Instream Flow Assessment: http://geo.stillwatersci.com/maps/slo_rifa/instreamflowassessment.html

Other components of the Watershed Planning effort will be included in the Draft IRWMP.

Happy holidays to you and your family! Thank you for your continued support of the local water resources planning efforts!

Best,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

Draft IRWM Drought Grant Funding PSPs & Guidelines Released - Expedited Local Project Solicitation Anticipated to Start Next Week
Carolyn Berg
to:

04/08/2014 09:50 AM
Bcc:
Cherie Du
Hide Details
From: Carolyn Berg/PubWorks/COSLO

To:

Bcc: Cherie Du/PubWorks/COSLO

1 Attachment

Excerpt_DraftDroughtGrantScoreSheet_20140403.pdf

Good morning IRWM RWMG and Stakeholders!

Last week DWR released the expedited drought grant funding ($200-million statewide competition) application and eligibility requirements. Our IRWM Region will consider submitting a regional drought grant application by DWR's **estimated deadline in early July 2014**. To do so, we will coordinate a local, expedited, drought-specific project solicitation. Keep in mind that project selection will focus on selecting a suite of projects that will most competitive against DWR grant app requirements and review standards (*see attached for critical scoring elements your project needs to provide*). Please note that the grant requirements indicate that ***projects with measurable water supply benefits, and those that will have construction bids awarded by 4/1/2015 will score the highest.***

DWR Grant Application Documents & Public Comment Period:
DWR's **public comment period will close on May 15, 2013 at 5:00 PM**. DWR will also host three public meetings to provide an overview of the expedited grant applications process and to solicit public cmments on the draft Guidelines and PSP. The draft documents and public meeting dates and locations are available on DWR's website:

http://www.water.ca.gov/irwm/grants/implementation.cfm

EXPEDITED local project solicitation and review schedule:

Project solicitation: ~4/16 - 4/25/14
Project review: ~4/28 - 5/2/14
Publish draft results
RWMG Meeting to consider recommended grant app suite of projects: 5/7/14 (tentatively at 9:00 AM)

Please monitor your email for the grant-specific project solicitation forms next week.

Best regards,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

Form(s) Due April 25th, 5:00 PM: SLO County IRWM Region Project Solicitation for DROUGHT Grant Funding
Carolyn Berg
to:

04/16/2014 11:11 AM
Cc:
Jane Gray, lidia gutierrez
Bcc:
Cherie Du
Hide Details
From: Carolyn Berg/PubWorks/COSLO

To:

Cc: Jane Gray <jgray@dudek.com>, lidia gutierrez <lidia@gutierrezconsultants.com>

Bcc: Cherie Du/PubWorks/COSLO

3 Attachments

IRWMP_FullProjectList2013.pdf FORM2-ProjectSolicitation_NEWProjectsOnly_DUE-20140425.xlsx

FORM1-DroughtForm_AllProjects_DUE-20140425.xlsm

Dear IRWM RWMG and Interested Stakeholders

Per the Governor's Declaration of Drought on January 17, 2014 and subsequent passage of SB 103 and 104 providing funding in support of drought relief, DWR has been directed by the legislature and the Governor to expedite solicitation & award of $200 million in drought relief funding through the IRWM. DWR released Draft Guidelines and PSP on April 3, 2014 (**DWR Draft PSPs:** **http://www.water.ca.gov/irwm/grants/implementation.cfm**) and the SAN LUIS OBISPO COUNTY IRWM REGION is currently soliciting projects for consideration into a Grant Application for Drought Relief Funding. Given that this is an **EXPEDITED funding round**, which only gives our Region until July 1st to complete a thorough and competitive grant application. Therefore, please **submit your agency's COMPETITIVE and ELIGIBLE projects for this drought funding NO LATER THAN 5:00 PM on FRIDAY APRIL 25, 2014 (Email to all: jgray@dudek.com, cberg@co.slo.ca.us, lidia@gutierrezconsultants.com).** Projects received after this deadline will not be considered.

Interested in submitting competitive and eligible projects?

1. Verify that your agency's project meets the Drought Specific eligibility criteria (see brief bullets below, and DWR PSPs at link above).
2. Verify that your agency's project is IRWM appropriate (consistent with IRWMP objectives, multiple benefits, etc.).
3. Verify whether your agency's project is already on the 2013 IRWM Full Project List (attached). If it is, only complete Form 1. If your project is new, complete Forms 1 & 2.
4. Complete and submit the attached project solicitation forms to Jane Gray by April 25th.
    - **FORM 1: ALL Interested, Eligible Projects** (including those on the Full Project List) - **Complete the "FORM1-DroughtForm_AllProjects_DUE-20140425.xls" form** (attached) to provide drought specific information and update status of the project.
    -

-AND- (for new projects only)

- **FORM 2: Only NEW Interested, Eligible Projects** (not already on Full Project List) - **Complete the "FORM2-ProjectSolicitation_NEWProjectsOnly_DUE-20140425.xls" form** (attached)

Join us our conference call on Tuesday April 22nd at 10:30 am to hear about the grant funding overview and ask questions about the local solicitation. The conference call in number is 1-877-658-6272 and the conference code is 3981559546. Please join us with any questions, comments, concerns.

2014 IRWM Drought Solicitation - Proposal Specific Funding Categories:

* immediate regional drought preparedness;
* increase local water supply reliability and the delivery of safe drinking water;
* assist water suppliers and regions to implement conservation programs and measures that are not locally cost-effective;
* reduce water quality conflicts or ecosystem conflicts created by the drought.

Keep in mind that project selection will focus on selecting a suite of projects that is most competitive against DWR grant app requirements and review standards. **Please note that the grant requirements indicate that projects with measurable water supply benefits, and those that will have construction bids awarded by 4/1/2015 will score the highest.**

EXPEDITED local project solicitation and review schedule:
Project solicitation: 4/16 - 4/25/14
Project review: 4/28 - 5/2/14
Publish draft results
RWMG Public Meeting: 5/7/14 (tentatively at 9:00 AM); Consider recommended grant app suite of projects

If you have any questions, please **contact Jane Gray at 805.963.0651 ext. 3531 or via email at jgray@dudek.com** with any questions.

Thank you,

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division

Jane Gray
Environmental Planner/Project Manager
DUDEK
ENGINEERING + ENVIRONMENTAL
621 Chapala Street, Santa Barbara, California 93101
T 805.963.0651 ext. 3531 F 805.963.2074 C 310.562.1704

Mark Your Calendar for IRWM RWMG Meeting - Wednesday, May 7th, 10:30 AM - 12:30PM

Carolyn Berg to: 04/17/2014 04:46 PM

Bcc: Cherie Du

Hi IRWM RWMG and Interested Stakeholders!

Mark your calendars for the next IRWM Regional Water Management Group meeting. Our main agenda items will include:

- Review local drought grant project solicitation, review and recommendations
- Approve suite of projects included in IRWM Region's drought grant application
- Discuss Administrative Draft IRWM Plan & outreach schedule

RWMG Meeting details *(same day/location as WRAC):*
Wednesday, May 7th
10:30 AM - 12:30 PM
at SLO Library Community Room

More information and the agenda will follow the week prior to the meeting.

Quick reminder for those interested, we will host a drought grant funding conference call next week: Tuesday, April 22nd, 10:30- 11:30 AM. We will give a drought grant funding overview and answer questions about the local solicitation. The conference call in number is 1-877-658-6272 and the conference code is 3981559546.

Enjoy your weekend!

Most appreciatively,
Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

Response Requested by 4/29 - Interested in Participating in State 's Data Gathering/Survey? - DWR Developing Water Management Investment Strategy - Needs Local Input

Carolyn Berg to: 04/22/2014 01:22 PM

Bcc: Cherie Du

Dear IRWM RWMG members,

The State Department of Water Resources (DWR) is developing a water management investment strategy. To do this, they would like to contact all flood and water management agencies in California to discuss information gaps, needs and opportunities, and to gather data from your agencies and organizations.

Please respond by April 29th to me (cberg@co.slo.ca.us) and CC Jill Ogren (jogren@co.slo.ca.us) with answers to the following questions :

1. **Would you like to participate in DWR 's information gathering effort ?**
2. **What is the name of your agency /organization?**
3. **Who is your primary contact person , and their phone and e-mail address?**

As the IRWM Regional lead, we would provide the DWR with your contact information, if you choose to participate. Please e-mail us with any questions. Thank you for your time!

Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

Carolyn Berg	Best regards, Carolyn	04/14/2014 08:12:58 AM

From: "Wegener, Terri@DWR" <Terri.Wegener@water.ca.gov>
To: "choward@co.slo.ca.us" <choward@co.slo.ca.us>
Date: 04/04/2014 11:23 AM
Subject: DWR Request for Info: IRWM Contacts

Dear IRWM Regional Lead,

This email is to request the help of your IRWM Region.

As you are aware, California's Flood Future Report has been successfully completed and distributed to the public. In November 2013, DWR and USACE released *California's Flood Future: Recommendations for Managing the State's Flood Risk* , a comprehensive look at statewide flood risk that outlines recommendations for action to address barriers to improved flood management. A follow-up effort is being undertaken to produce a water management investment strategy for California using an integrated water management (IWM) approach.

To accomplish this we plan to meet with flood and water management agencies throughout California to identify existing state flood and water management facilities and information, information gaps, and

needs and opportunities. To the extent possible, we will build on the information gathered by other recent surveys, reported in IRWM plans, etc.

To support our effort, please provide us with a list of your region's member agencies, primary contact person for the agency and correct email address.

We will use this information to invite your IRWM participants to participate in our information gathering effort.

Please send your response to me with a copy to Erika.Powell@CH2M.com. If you have questions, please contact me at (916)-651-9238. Thank you for helping DWR develop an IWM approach to obtain sufficient and stable funding for water management in California.

-Terri

Terri Wegener
Statewide Integrated Flood Management Planning
Department of Water Resources
901 P Street, Room 213B
Sacramento, CA. 94236
Work: 916-651-9238
Mobile: 916-956-4390
twegener@water.ca.gov

Fw: Form(s) Due April 25th, 5:00 PM: SLO County IRWM Region Project Solicitation for DROUGHT Grant Funding

Carolyn Berg to: 04/22/2014 10:13 AM
Bcc: Cherie Du

Good morning, IRWM RWMG Members and Friends!

We are looking forward to speaking with interested drought project sponsors this morning. Call in if you have questions or want to learn more about the grant application round. Attached are the power point slides that Jane and Lidia will walk through.

Join us our conference call today at 10:30 am by calling **conference call number 1-877-658-6272 (conference code is 3981559546**) to hear about the grant funding overview and ask questions about the local solicitation. Please join us with any questions, comments, concerns.

Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
(805) 781- 5536

IRWMP - SLO Drought Grant Mtg April 2014 final.pdf

----- Forwarded by Carolyn Berg/PubWorks/COSLO on 04/22/2014 10:09 AM -----

From: Carolyn Berg/PubWorks/COSLO
To:
Cc: Jane Gray <jgray@dudek.com>, lidia gutierrez <lidia@gutierrezconsultants.com>
Date: 04/16/2014 11:11 AM
Subject: Form(s) Due April 25th, 5:00 PM: SLO County IRWM Region Project Solicitation for DROUGHT Grant Funding

---

Dear IRWM RWMG and Interested Stakeholders

Per the Governor's Declaration of Drought on January 17, 2014 and subsequent passage of SB 103 and 104 providing funding in support of drought relief, DWR has been directed by the legislature and the Governor to expedite solicitation & award of $200 million in drought relief funding through the IRWM. DWR released Draft Guidelines and PSP on April 3, 2014 (**DWR Draft PSPs: http://www.water.ca.gov/irwm/grants/implementation.cfm**) and the SAN LUIS OBISPO COUNTY IRWM REGION is currently soliciting projects for consideration into a Grant Application for Drought Relief Funding. Given that this is an **EXPEDITED funding round**, which only gives our Region until July 1st to complete a thorough and competitive grant application. Therefore, please **submit your agency's COMPETITIVE and ELIGIBLE projects for this drought funding NO LATER THAN 5:00 PM on FRIDAY APRIL 25, 2014 (Email to all: jgray@dudek.com, cberg@co.slo.ca.us, lidia@gutierrezconsultants.com).** Projects received after this deadline will not be considered.

Interested in submitting competitive and eligible projects?

1. Verify that your agency's project meets the Drought Specific eligibility criteria (see brief bullets below, and DWR PSPs at link above).
2. Verify that your agency's project is IRWM appropriate (consistent with IRWMP objectives, multiple benefits, etc.).
3. Verify whether your agency's project is already on the 2013 IRWM Full Project List (attached). If it is, only complete Form 1. If your project is new, complete Forms 1 & 2.
4. Complete and submit the attached project solicitation forms to Jane Gray by April 25th.

- **FORM 1: ALL Interested, Eligible Projects** (including those on the Full Project List) - **Complete the "FORM1-DroughtForm_AllProjects_DUE-20140425.xls" form** (attached) to provide drought specific information and update status of the project.

-AND- (for new projects only)

- **FORM 2: Only NEW Interested, Eligible Projects** (not already on Full Project List) - **Complete the "FORM2-ProjectSolicitation_NEWProjectsOnly_DUE-20140425.xls" form** (attached)

Join us our conference call on Tuesday April 22nd at 10:30 am to hear about the grant funding overview and ask questions about the local solicitation. The conference call in number is 1-877-658-6272 and the conference code is 3981559546. Please join us with any questions, comments, concerns.

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* immediate regional drought preparedness;
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Keep in mind that project selection will focus on selecting a suite of projects that is most competitive against DWR grant app requirements and review standards. **Please note that the grant requirements indicate that projects with measurable water supply benefits, and those that will have construction bids awarded by 4/1/2015 will score the highest.**

EXPEDITED local project solicitation and review schedule:
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RWMG Public Meeting: 5/7/14 (tentatively at 9:00 AM); Consider recommended grant app suite of projects

If you have any questions, please **contact Jane Gray at 805.963.0651 ext. 3531 or via email at jgray@dudek.com** with any questions.

Thank you,

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division

Jane Gray
Environmental Planner/Project Manager
DUDEK
ENGINEERING + ENVIRONMENTAL
621 Chapala Street, Santa Barbara, California 93101
T 805.963.0651 ext. 3531 F 805.963.2074 C 310.562.1704
[attachment "IRWMP_FullProjectList2013.pdf" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "FORM2-ProjectSolicitation_NEWProjectsOnly_DUE-20140425.xlsx" deleted by Carolyn Berg/PubWorks/COSLO] [attachment "FORM1-DroughtForm_AllProjects_DUE-20140425.xlsm" deleted by Carolyn Berg/PubWorks/COSLO]

Examples & Contact Info for Questions -RE: Form(s) Due April 25th, 5:00 PM: SLO County IRWM Region Project Solicitation for DROUGHT Grant Funding

Carolyn Berg to: 04/23/2014 11:19 AM

Bcc: Cherie Du

Thank you to those who participated on our IRWM drought grant funding conference call yesterday! Per our discussion, please reference the last grant application to understand the significant detail and documentation required for your project(s), if selected for inclusion in the SLO Co IRWM Region's grant application (especially Attachment 7 Technical Justification and exhibits):
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Grant%20Applications/PROP%2084%20Round%202%20Impl/

Should you have follow up questions, please contact **Jane Gray at 805.963.0651 ext. 3531 or via email at jgray@dudek.com.**

Just a reminder to submit your agency's COMPETITIVE and ELIGIBLE projects for this drought funding NO LATER THAN 5:00 PM on FRIDAY APRIL 25, 2014 (Email to all: jgray@dudek.com, cberg@co.slo.ca.us, lidia@gutierrezconsultants.com).

Drought Grant forms and information is available at:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Grant%20Applications/PROP%2084%20Drought%20Grant/

Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer

----- Forwarded by Carolyn Berg/PubWorks/COSLO on 04/23/2014 10:39 AM -----

From: Carolyn Berg/PubWorks/COSLO
To:
Date: 04/22/2014 10:13 AM
Subject: Fw: Form(s) Due April 25th, 5:00 PM: SLO County IRWM Region Project Solicitation for DROUGHT Grant Funding

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Carolyn

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer
[attachment "IRWMP - SLO Drought Grant Mtg April 2014 final.pdf" deleted by Carolyn Berg/PubWorks/COSLO]
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Cc: Jane Gray <jgray@dudek.com>, lidia gutierrez <lidia@gutierrezconsultants.com>
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   -AND- (for new projects only)

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If you have any questions, please **contact Jane Gray at 805.963.0651 ext. 3531 or via email at jgray@dudek.com** with any questions.

Thank you,

Carolyn Berg, P.E.
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Summary of Results from 5/7 IRWM RWMG Meeting - Approved IRWM Drought Grant Application Suite of Projects

Carolyn Berg to: 05/21/2014 11:35 AM

Bcc: Cherie Du

Hello IRWM Regional Water Management Group (RWMG) Members, WRAC Members, and Interested Stakeholders,

Thank you to those who participated in the May 7th RWMG meeting to approve a drought grant application project list! Below is a brief summary of the results and next steps.

As a reminder, Senate Bill 104 appropriated $200M of existing Proposition 84 IRWM grants to be awarded by the Department of Water Resources (DWR) in an expedited drought relief funding round (via a Statewide competition, rather than the typical Funding Area competition). This is a highly competitive grant application, where DWR will award grant funding to help meet the State's most critical impacts of the current drought.

Local Project Solicitation for 2014 IRWM Drought Grant

The District hired Carollo Engineers to conduct a local drought project solicitation and review, and to develop necessary grant application documents for approved projects. The local drought project solicitation closed on Friday, April 25th. 18 projects and programs were submitted, which are posted at:

http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Grant%20Applications/PROP%2084%20Drought%20Grant/

Approval of the 2014 IRWM Drought Grant Application Suite of Projects

- **RWMG** - On May 7th the RWMG approved (with a 14-0-2 vote) the five projects and estimated grant funding allocation at a maximum, understanding that if project(s) are unable to provide necessary documents for the team to develop the grant application, that project(s) may be removed from the application. The intent is to only submit a highly competitive regional application.
- **WRAC** - On May 7th the Water Resources Advisory Committee (WRAC) supported the RWMG's approved drought grant application project list and recommended that the District Board of Supervisors approve that list and submittal of a regional grant application.
- **District Board** - On June 17th District Staff intends to go to the District Board of Supervisors (RWMG Lead Agency) for authorization to submit the regional grant application. At that meeting, Staff will provide an overview of the eligibility requirements and deadlines, including the need to submit a final IRWM Plan by or before the grant application deadline (tentatively July 1st).

2014 IRWM Drought Grant Application Project List & Grant Allocation (scored suite of projects attached)

NOTE: These are initial project costs and grant allocations, to be finalized as the team works with Project Sponsors over the next two months.

Project	Estimated Project Cost	Drought Funding Allocation in Application
CSA 23-Atascadero-Garden Farms Emergency	$1,930,000	$1,450,000
Heritage Ranch CSD Emergency Turnout	$150,000	$112,500
Cambria CSD Emergency Water Supply	$5,000,000	$3,750,000
San Simeon Small Scale Recycled Water	$1,728,120	$1,296,090

Salinas-Nacimiento-CMC Emergency Intertie	$4,050,000	$3,040,000
TOTAL GRANT FUNDING for SLO Co IRWM Region Drought Grant Application		**$9,648,590**

2014 IRWM Drought Grant State Guidelines

DWR published draft expedited drought grant solicitation requirements on April 3rd (http://www.water.ca.gov/irwm/grants/implementation.cfm.). The CCFA and District submitted comments on behalf of the region before DWR's May 15th deadline. Grant applications are expected to be due in early July 2014. DWR anticipates publishing draft awards in September 2014.

Thank you for your continued support and interest in the IRWM Program!

Carolyn

20140507 IRWMP_RWMG Mtg Results.pdf

Carolyn Berg, P.E.
County of San Luis Obispo, Department of Public Works
Utilities Division Staff Engineer

Updated presentation and agenda for SLOC IRWMP Subregion Workshops

Cornelius, Michael to: aharris@mbnep.org, laura@us-ltrcd.org, rlivick@morro-bay.ca.us, ocsdgm@oceanocsd.org,
Cc: "Carolyn Berg (cberg@co.slo.ca.us)", "choward@co.slo.ca.us", "Jane Gray (jgray@dudek.com)" , "Cornelius, Michael"

03/19/2013 04:00 PM

History: This message has been replied to.

Hi all – Thanks again for your volunteering to lead the initial steps of the work with the subregions. I have provided an updated presentation and agenda.

Carolyn, Jane Gray, along with other members of our team will be at each of the thee subregion workshops. Please let me know if you have any questions now. I will also be available prior to the workshop.

The agenda is divided into parts that correspond to the presentation. Please note that times are provided to try to keep the workshop moving so we have time to get to Item 4.

1) Background on SLOC IRWMP Update (10 minutes): Carolyn – Slides 1-13
2) Overview of Sub-Region Workshops (10 minutes): Subregion lead – slides 14-19
3) Overview of Governance Approach (5 minutes) Subregion lead – slides 20-25
4) Review and Update Issues and Objectives (90 minutes) Subregion Lead – slides 26-44
5) Identify Next Steps (5 minutes) Subregion lead – slide 45

We will be available to answer questions during the presentation as needed. Both the presentation and the agenda are titled for South County, so they will need to be updated to reflect the other subregions.

The purpose of the water issues survey is to get direct feedback from the participants to identify the important issues in each subregion, and in the Region in total. This information will then be used to help update, and prioritize the objectives.

Attachments: To be provided at Sub-Regional Workshop

- Agenda (attached)
- Sign-in Sheet (attached)
- Brochure (attached – I will bring some copies)
- MOU (I will bring copies)
- Communications and Outreach Plan (Once finalized – I will bring copies)
- Water Management Issues Survey (attached – I will bring copies)
- Goals and Objectives Handout (attached - I will bring copies)

Please let me know if there are any questions,
Mike

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SLO IRWMP _March 2013_Sub Workshop_ final draft 031913.pptx

SLOC IRWMP March 2013_ Subregion Agenda_final draft 031913.docx

SLOC IRWMP Brochure d12.pdf

SLOC IRWMP standard Sign in sheet.pdf

Water Issues Survey.pdf

SLOCIRWMP Objectives Handout d2.pdf

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, June 5, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of May Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Paso Robles Groundwater Basin Management Efforts**
   c. **Laetitia Agricultural Cluster Development Revised Recirculated Draft Environmental Impact Report Release for Public Comment**

5. **Integrated Regional Water Management (IRWM) Plan Update:**
   a. **Status Update on Draft IRWM Plan Update (Goals and Objectives Section) and Regional Water Management Group Meeting**
   b. **Review Approach for IRWM Plan Review at Key Decision Points**
   c. **Identify Replacements for IRWM Subcommittee**

6. **Agriculture At-Large Member Appointment Recommendation**

7. **Presentation on Nipomo Supplemental Water Alternatives Evaluation Report**

8. **Consider Holding a WRAC Meeting in July 2013 or August 2013**

9. **Suggested Future Agenda Items**

10. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **September 4, 2013 at 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

****Unless Special Meeting Scheduled per Agenda Item # 8**

Visit Water Resources on the Web at*:* *www.SLOCountyWater.org*

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, May 1, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**
2. **Approval of April Meeting Minutes**
3. **Public Comment (15 Minutes)**
4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Program**
5. **Flood Control and Water Conservation District FY 2013/14 Budget**
6. **Consider Supporting Paso Robles Groundwater Basin Management Plan Implementation Priorities for May 7th Board of Supervisors' Hearing**
7. **Consideration of Subcommittee Report on Oster/ Las Pilitas Quarry Draft Environmental Impact Report**
8. **Suggested Future Agenda Items**
9. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **June 5, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Purpose of the Committee:
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SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, April 3, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of March Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Program**

5. **Presentation by UC Cooperative Extension on its Vineyard Irrigation Study in the Paso Robles Groundwater Basin**

6. **Member Report: Oceano Community Services District**

7. **Suggested Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **May 1, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Purpose of the Committee:
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SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, March 6, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of February Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **WRAC Officer Elections**

5. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Program**
      - **Regional Water Management Group Efforts**
      - **Consider IRWM Ad-Hoc Subcommittee Membership**
   c. **Paso Robles Groundwater Basin Efforts**

6. **Presentation on the County Storm Water Permit**

7. **Consider Submitting the WRAC Annual Report to the Board of Supervisors**

8. **Consider Forming an Ad Hoc Subcommittee to Review Agricultural at-Large Applications and Develop a Recommendation**

9. **Consideration of the Process and Actions to Modify a Level of Severity for Water Supply and the WRAC's Participation**

10. **Suggested Future Agenda Items**

11. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **April 3, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, February 6, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of January Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Program**
   c. **Paso Robles Groundwater Basin Efforts**

5. **Identify a Replacement for Della Barrett on the Oster/ Las Pilitas Quarry Draft Environmental Impact Report Subcommittee and Status Update**

6. **Consider Forming an Ad Hoc Subcommittee to Review the Water Resource Components of a Re-circulated Draft Environmental Impact Report for the Proposed Laetitia Agricultural Cluster Development**

7. **Consider Sending a Letter to the Board of Supervisors Regarding the Water and Wastewater Components of the Biennial Summary Report for the County Resource Management System**

8. **Presentation on the Land Use and Circulation Element Phase 1 Revision and Consider Forming an Ad Hoc Subcommittee to Review the Revisions**

9. **Suggested Future Agenda Items**

10. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Presentation on U.S.G.S. Study on Geothermal Systems' Effects on Water Quality and Availability in the Paso Robles Groundwater Basin *(Since this item may extend past the meeting time and no action is required, this presentation is not considered a regular agenda item.)*

Next Regular Meeting: **March 6, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* *www.SLOCountyWater.org*

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, January 2, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of December Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Program Status Updates on:**
      - **Next Regional Water Management Group Meeting**
      - **Focused Planning Studies Funded by the IRWM Planning Grant**
      - **Proposition 84 Round 2 Implementation Grant Application**
   c. **Paso Robles Groundwater Basin Efforts**

5. **Consider Subcommittee Report on the Review of the Water and Wastewater Components of the Biennial Summary Report for the County Resource Management System**

6. **Consider Forming an Ad Hoc Subcommittee to Review the Water Resource Components of a Re-circulated Draft Environmental Impact Report for the Proposed Laetitia Agricultural Cluster Development**

7. **Suggested Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **February 6, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, December 5, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of November Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Subcommittee to Review the Water and Wastewater Components of the Biennial Summary Report for the County Resource Management System**

5. **WRAC Administrative Items:**
   a. **Determine January Meeting Day and Time**
   b. **Timing of Agency Member Nominations, At-Large Membership Confirmations, Board Appointments and WRAC Officer Elections**

6. **Consider Supporting Recommendation to Develop Requests for Proposals to Conduct Feasibility Studies for Paso Robles Groundwater Basin Alternatives**

7. **Integrated Regional Water Management (IRWM) Program**
   a. **Consider Subcommittee Recommendation Related to a Round 2 IRWM Implementation Grant Application and Including Shandon State Water Connection**
   b. **IRWM Plan Update Status**

8. **Consider Recommending that the Board of Supervisors Direct Environmental Health Staff to Update the Water Well Permit Application Form per the Conservation and Open Space Element**

9. **Identify a Replacement for Mike Winn on the Oster/ Las Pilitas Quarry Draft Environmental Impact Report Subcommittee and Status Update**

10. **Suggested Future Agenda Items**

11. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **January 2, 1:30 p.m. (TBD)**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, November 7, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of October Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Paso Robles Groundwater Basin Efforts**
   c. **Efforts to Organize an Informational Forum on Hydraulic Fracturing**
   d. **Ad Hoc Subcommittee Efforts to Review the Water Resource Components of the Draft Environmental Impact Report for the Oster / Las Pilitas Quarry**

5. **Consider forming an Ad Hoc Subcommittee to Review Regional Water Management Group Recommendations on the Integrated Regional Water Management Round 2 Implementation Grant and Plan Update**

6. **Consider Forming an Ad Hoc Subcommittee to Review the Wastewater and two Water Components of the Biennial Summary Report for the County Resource Management System**

7. **Suggested Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **December 5, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, October 3, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of September Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**

5. **Consider Forming an Ad Hoc Subcommittee to Review the Water Resource Components of the Draft Environmental Impact Report for the Oster/ Las Pilitas Quarry**

6. **Poll Members as to Whether the Water Resources Advisory Committee Should Pursue an Informational Forum on Hydraulic Fracturing**

7. **Integrated Regional Water Management (IRWM) Program**
   a. **Consider Support of the Revised IRWM Memorandum of Understanding**
   b. **IRWM Round 2 Implementation Project Solicitation and Planning Efforts Update**

8. **Resource Management System (RMS) for Water Supply, Water Systems, and Wastewater**
   a. **Update on the Implementation of 2010 RMS Recommendations**
   b. **Update on the Approach for the Biennial Report and RMS Revisions for Water Supply, Water Systems, and Wastewater**

9. **Suggested Future Agenda Items**

10. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **November 7, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* *www.SLOCountyWater.org*

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, September 5, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**
2. **Approval of July Special Meeting Minutes**
3. **Public Comment (15 Minutes)**
4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Paso Robles Groundwater Basin Efforts Update**
5. **Recommend an IRWM Plan "B" Implementation Grant Funding Distribution**
6. **Review of Water Conservation Implementation Plan for the Los Osos Wastewater Project, with WRAC comments (Public Comment 20 Minutes)**
7. **Suggested Future Agenda Items**
8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **October 3, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE
SPECIAL MEETING

City/County Library Community Room
995 Palm Street
San Luis Obispo

Monday, July 9, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of June Meeting Minutes**

3. **Process for Developing a Proposition 84 Round 1 Integrated Regional Water Management Implementation Grant "Plan B"**

4. **Agricultural Cluster Ordinance**
   a. **Planning Department Presentation**
   b. **Consideration of Subcommittee Report on the Draft Agricultural Cluster Ordinance**

5. **Agriculture At-Large Alternate Member Appointment Recommendation**

6. **Suggested Future Agenda Items**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **September 5, 2012, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* *www.SLOCountyWater.org*

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, June 6, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of May Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Planning of an Informational Forum on Hydraulic Fracturing Sponsored by the WRAC**
   c. **Integrated Regional Water Management (IRWM) Program Update**
   d. **Paso Robles Groundwater Basin Efforts Update**
   e. **Report on Tax Assessment District Ballot in Nipomo**
   f. **Report on Tax Assessment District Ballot in Santa Margarita**
   g. **Agriculture At-Large Alternate Member Position**

5. **Consider the Letter of Commendation to Bill Bianchi for Career of Service**

6. **Consider the Revised WRAC Membership Vision for At-Large Members**

7. **Consideration of Subcommittee Report on Draft Revisions to the Resource Management System (RMS) for Water Supply, Water Systems, and Wastewater**

8. **Agricultural Cluster Ordinance Update Presentation**

9. **Consider Subcommittee Report on Water Resource Components of the Revised Draft Environmental Impact Report for the Laetitia Agricultural Cluster Development**

10. **Consider of Holding a WRAC Meeting on July 9, 2012**

11. **Suggested Future Agenda Items**

12. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **TBD**

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Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, May 2, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of April Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Planning of an Informational Forum on Hydraulic Fracturing Sponsored by the WRAC**
   c. **Integrated Regional Water Management (IRWM) Program Update**
   d. **Paso Robles Groundwater Basin Efforts Update**

5. **Regional Implications of the Los Osos Wastewater Project Basin Recycled Water Management Plan**

6. **Flood Control and Water Conservation District FY 2012/13 Budget**

7. **Agricultural Cluster Ordinance Update Presentation**

8. **WRAC Administrative Actions for Consideration:**

   a. **Updating WRAC Bylaws: Setting the Monthly Agenda, Scheduling the Annual Report, and Biannual Review of Bylaws**

   b. **Agricultural At-Large Alternate Member Vacancy**

9. **Consider Forming an Ad Hoc Subcommittee to Review the Water Resource Components of the Revised Draft Environmental Impact Report for the Laetitia Agricultural Cluster Development**

10. **Suggested Future Agenda Items**

11. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **June 6, 2012, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Purpose of the Committee:
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Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, April 4, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of March Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Agricultural Waiver**
   c. **Planning of a Special Meeting on Hydraulic Fracturing**
   d. **Integrated Regional Water Management (IRWM) Program**
   e. **Paso Robles Groundwater Basin Efforts Update**
   f. **Paso Robles Groundwater Basin Resource Capacity Study Land Use Ordinance**
   g. **Land Use and Circulation Element Update**

5. **Resource Management System (RMS) Revisions – Form a Subcommittee to Review Water Supply, Water Systems, and Wastewater Sections**

6. **WRAC Annual Report**

7. **Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **May 2, 2012, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Purpose of the Committee:
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Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, March 7, 2012
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of February Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **WRAC Officer Elections**

5. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Master Water Plan Strategic Planning Outcome**
   c. **Paso Robles Groundwater Basin Efforts Update**
   d. **Los Osos Water Issues – Approach to Discussion Item with the WRAC**

6. **Integrated Regional Water Management (IRWM) Program**
   a. **Approve Letter of Support for IRWM Planning Grant Application**
   b. **IRWM Sub-regional Subcommittee Activities Update**

7. **Public Comment Regarding Available Information on Hydraulic Fracturing**

8. **Future Agenda Items**

9. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **April 4, 2012, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

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Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, February 1, 2012
9:00 a.m.

1. **Determination of a Quorum and Introductions**

2. **Integrated Regional Water Management Program Workshop**

--- Noon Recess 12:00 p.m. - 1:30 p.m. ---

3. **Redetermination of a Quorum and Introductions**

4. **Approval of January Meeting Minutes**

5. **Public Comment (15 Minutes)**

6. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management Program Workshop Report**

7. **Consideration of Subcommittee Report on the Draft Ordinance Language for the Land Use Actions in the Paso Robles Groundwater Basin Resource Capacity Study**

8. **Excelaron Project Presentation (Huasna Oil Field) – Water Resources Considerations**

9. **Discussion Regarding Available Information on Hydraulic Fracturing**

10. **Consider Supporting Paso Robles Groundwater Management Plan Adoption**

11. **Preview of Master Water Plan Presentation to the Board of Supervisors**

12. **Future Agenda Items**

13. **Public Comment (if needed)**

--- Adjourn by 3:30 p.m. ---

Next Regular Meeting: **March 7, 2012, 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, January 4, 2012
9:00 a.m.

1. **Determination of a Quorum and Introductions**

2. **Integrated Regional Water Management Program Workshop**
   a. **Planning Grant Application**
   b. **Governance Structure**

--- Noon Recess 12:00 p.m. - 1:30 p.m. ---

3. **Redetermination of a Quorum and Introductions**

4. **Approval of December Meeting Minutes**

5. **Public Comment (15 Minutes)**

6. **Integrated Regional Water Management Program Workshop *(continued, if needed)***

7. **Ongoing Updates:**
   a. **Rain & Reservoir Report**

8. **Water Resources Advisory Committee Priorities and District Efforts for 2012**

9. **Resource Management System (RMS) Revisions for Water Supply**

10. **Future Agenda Items**

11. **Public Comment (if needed)**

--- Adjourn by 3:30 p.m. ---

Next Regular Meeting: **February 1, 2012, 9:00 a.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, December 7, 2011
9:00 a.m.

1. **Determination of a Quorum and Introductions**

2. **Integrated Regional Water Management Program Workshop**

--- Noon Recess 12:00 p.m. - 1:30 p.m. ---

3. **Redetermination of a Quorum and Introductions**

4. **Approval of November Meeting Minutes**

5. **Public Comment (15 Minutes)**

6. **Ongoing Updates:**
   a. **Rain & Reservoir Report**

7. **Consideration of Forming a Subcommittee to Review Draft Ordinance Language for the Land Use Actions in the Paso Robles Groundwater Basin Resource Capacity Study**

8. **Allocation of San Luis Obispo County Flood Control and Water Conservation District Reserves**

9. **Future Agenda Items**

10. **Public Comment (if needed)**

--- Adjourn by 3:30 p.m. ---

Next Regular Meeting: **January 4, 2011, 9:00 a.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated March 1, 2011

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, May 7, 2014
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of April Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Paso Robles Groundwater Basin Management Efforts**

5. **Integrated Regional Water Management (IRWM) Plan:**
   a. **Identify a Replacement for Mike Broadhurst on the IRWM Subcommittee**
   b. **Receive a Status Update on the IRWM Plan Update**
   c. **Consider supporting the Regional Water Management Group's Recommended List of Projects for Inclusion in the IRWM Expedited Drought Grant Funding Application**

6. **Biennual Review and Consideration of Updating the WRAC Bylaws**

7. **Suggested Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **June 4, 2014**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* *www.SLOCountyWater.org*

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, April 2, 2014
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of March Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Plan Update**

5. **Paso Robles Groundwater Basin Management Efforts:**
   a. **Status Update including Progress on Agricultural Offset Program**
   b. **Consider Formation of a Water Banking/ Exchange Subcommittee**

6. **Consider Formation of a Drought Response and Resiliency Subcommittee**

7. **Flood Control and Water Conservation District FY 2014/15 Budget and Priorities**
   a. **Staff Presentation**
   b. **Consider Formation of a Subcommittee to Review Budget and Priorities**

8. **Receive Presentation and Provide Input on Potential Water Conservation Implementation Strategies**

9. **Introduce the Subcommittee Report on the Review of the Water Resources Related Sections of the County of San Luis Obispo's Draft Resource Management System Update (General Plan Amendment)**

10. **Suggested Future Agenda Items**

11. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **May 7, 2014**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, March 5, 2014
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of February Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Consider Submitting the WRAC 2013 Annual Report to the Board of Supervisors**

5. **WRAC Officer Elections**

6. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Plan Update**

7. **Paso Robles Groundwater Basin Management Efforts:**
   a. **Status Update**
   b. **Discuss WRAC's Role in Review of Basin Management and Policy Development, Determine Potential Actions, and Consider Formation of a Subcommittee**

8. **Local and Regional Drought Response Efforts**

9. **Consider Subcommittee Status Update on the Review of the Water Resources Related Sections of the County of San Luis Obispo's Draft Resource Management System Update (General Plan Amendment)**

10. **Suggested Future Agenda Items**

11. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **April 2, 2014**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, February 5, 2014
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of January Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Plan Update**

5. **Paso Robles Groundwater Basin Management Efforts:**
   a. **General Update on Basin Efforts**
   b. **Consideration of developing a recommendation to the Board of Supervisors in support of a Legislative Platform for the PRAAGS/PRO Water Equity legislative proposal for the Paso Robles Groundwater Basin**
   c. **Discuss WRAC's Role in Review of Basin Management and Policy Development, Determine Potential Actions, and Consider Formation of a Subcommittee**

6. **Consider Forming an Ad Hoc Subcommittee to Review the Water Resources Related Sections of the County of San Luis Obispo's Draft Resource Management System Update (General Plan Amendment)**

7. **Suggested Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **March 5, 2014**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, January 8, 2014
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of December Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**

5. **Paso Robles Groundwater Basin Management Efforts:**
   a. **Status Update**
   b. **Discuss WRAC's Role in Review of Basin Management and Policy Development, Determine Potential Actions, and Consider Formation of a Subcommittee**

6. **Update on the Integrated Regional Water Management (IRWM) Plan Update:**
   a. **IRWM Plan Administrative Draft**
   b. **Presentation on the Draft Results of Study to Identify Groundwater Basins Requiring Salt and Nutrient Management Plans**

7. **Suggested Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **February 5, 2014**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, December 4, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of November Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**

5. **WRAC Administrative Items:**
   a. **Determine January Meeting Day and Time**
   b. **Timing of Agency Member Nominations, At-Large Membership Confirmations, Board Appointments and WRAC Officer Elections**

6. **Paso Robles Groundwater Basin Management Efforts:**
   a. **Update on the Basin Computer Model Update and Management Efforts**
   b. **Discuss WRAC's Role in Review of Basin Management and Policy Development, Determine Potential Actions, and Consider Formation of a Subcommittee**

7. **Brief Update on the Integrated Regional Water Management (IRWM) Plan Update, including:**
   a. **Update on the Watershed Management Planning: Phase I**
   b. **Presentation on the Draft Results of Instream Flow Study: Stage I**

8. **Suggested Future Agenda Items**

9. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **January 8, 2014 *(first Wednesday falls on January 1, 2014)***
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, November 6, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of October Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **Integrated Regional Water Management (IRWM) Plan Update**

5. **Paso Robles Groundwater Basin Management Efforts:**
   a. **Status Update**
   b. **Discuss WRAC's Role in Review of Basin Management and Policy Development, Determine Potential Actions, and Consider Formation of a Subcommittee**

6. **Recycled Water Strategic Planning**

7. **Suggested Future Agenda Items**

8. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **December 4, 2013 at 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* *www.SLOCountyWater.org*

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, October 2, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of September Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**
   b. **County Environmental Health Geographic Information System and Mapping Efforts**

5. **Paso Robles Groundwater Basin Management Efforts:**
   a. **Status Update**
   b. **Discuss WRAC's Role in Review of Basin Management and Policy Development, Determine Potential Actions, and Consider Formation of a Subcommittee**

6. **Discuss WRAC's Role in Review of Individual Project Environmental Documents Considering Criteria such as: Project's Implications Related to Change in Water Policy with Countywide Effects and/or Regional Impact on Water Supply**

7. **Integrated Regional Water Management (IRWM) Plan Update:**
   a. **Status Update on Draft IRWM Plan Update and Regional Water Management Group (RWMG) Meeting**
   b. **Consider Supporting RWMG/Public Works Comment Letter to the State Department of Water Resources Regarding the 2012 IRWM Guidelines Draft Plan Review Process**

8. **Suggested Future Agenda Items**

9. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **November 6, 2013 at 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* *www.SLOCountyWater.org*

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, September 4, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of August Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Ongoing Updates:**
   a. **Rain & Reservoir Report**

5. **Paso Robles Groundwater Basin Management Efforts:**
   a. **Status Update on August 27th Board of Supervisors Meeting**
   b. **Discuss WRAC's Role in Review of Basin Management and Policy Development, Determine Potential Actions, and Consider Formation of a Subcommittee**

6. **Consider Subcommittee Report on the Draft Integrated Regional Water Management (IRWM) Project Solicitation and Review Methodology White Paper**

7. **Discuss WRAC's Role in Review of Individual Project Environmental Documents Considering Criteria such as: Project's Implications Related to Change in Water Policy with Countywide Effects and/or Regional Impact on Water Supply**

8. **Suggested Future Agenda Items**

9. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **October 2, 2013 at 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

SAN LUIS OBISPO COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT
WATER RESOURCES ADVISORY COMMITTEE
SPECIAL MEETING

City/County Library Community Room
995 Palm Street
San Luis Obispo

Wednesday, August 7, 2013
1:30 p.m.

1. **Determination of a Quorum and Introductions**

2. **Approval of June Meeting Minutes**

3. **Public Comment (15 Minutes)**

4. **Consider Subcommittee Report on the Water Resources Components of the Laetitia Agricultural Cluster Development Revised Recirculated Draft Environmental Impact Report**

5. **Integrated Regional Water Management (IRWM) Plan Update:**
   a. **Review Outcomes of Sub-Region Workshops and Regional Water Management Group Meeting**
   b. **Status Update on IRWM Grant Funding**
   c. **Status Update on IRWM Watershed Planning and Instream Flow Study**

6. **Suggested Future Agenda Items**

7. **Public Comment (if needed)**

--- *Adjourn by 3:30 p.m.* ---

Next Regular Meeting: **September 4, 2013 at 1:30 p.m.**
San Luis Obispo City/County Library
995 Palm Street, San Luis Obispo

Visit Water Resources on the Web at*:* ***www.SLOCountyWater.org***

Purpose of the Committee:
To advise the County Board of Supervisors concerning all policy decisions relating to the water resources of the SLO County Flood Control & Water Conservation District. To recommend to the Board specific water resource programs. To recommend methods of financing water resource programs.

Excerpts from WRAC By-Laws dated August 28, 2012

D-2 Brochures

San Luis Obispo IRWM Plan Update

First 90 Days Approach

In consultation with the Water Resources Advisory Committee (WRAC) and water users throughout the County, the San Luis Obispo County Flood Control and Water Conservation District (District) developed the 2007 IRWM Plan in compliance with the then-current State Guidelines. The current SLO IRWM Plan incorporates the programs, plans and water-related projects within the Region, and discusses them in terms of water supply, water quality, ecosystem preservation and restoration, groundwater monitoring and management, and flood management.

The District applied for and received a Planning Grant under Proposition 84 that allows the Region to update the current IRWM Plan and to perform several detailed studies, which will be incorporated into the SLO IRWM Plan Update.

How You Participate

A series of IRWM Plan update workshops will allow stakeholders to discuss IRWM Plan Standards such as: Governance, Region Description/Climate Change, Objectives, and Project Review Process. The workshops will allow a forum for stakeholders to consider the existing IRWM Plan, review key plan sections, discuss various options, and gain consensus on the best approach to restructure the Plan to fit changing regional water management needs. The workshops will be held in each of the three subregions to encourage greater participation in the Plan Update from local agencies, interested stakeholders, and disadvantaged communities.

The San Luis Obispo County Region is divided into three subregions: North Coast, North County, and South County.

IRWM Plan Update Workshops

MARCH 20

9:30 am–11:30 pm
Oceano Community Stakeholder Meetings

1:30pm–3:30 pm
San Luis Obispo Community Stakeholder Meetings

MARCH 21

10:00 am–12:00 pm
Atascadero Community Stakeholder Meetings

1:00 pm–3:00 pm
Morro Bay Community Stakeholder Meetings

6:30 pm–8:30 pm
San Miguel Community Stakeholder Meetings

MARCH 22

10:00 am–12:00 pm
Paso Robles Community Stakeholder Meetings

MARCH 25

10:00 am–12:00 pm
South County Sub-Regional Workshop

1:00 pm-3:00 pm
North Coast Sub-Regional Workshop

MARCH 26

1:00 pm–3:00 pm
North County Sub-Regional Workshop

Term Definitions

IRWM
Integrated Regional Water Management

PLAN
IRWM Plan

SLO
San Luis Obispo

REGION
SLO County IRWM Region

DISTRICT
San Luis Obispo County Flood Control & Water Conservation District

RWMG
Regional Water Management Group

WRAC
Water Resources Advisory Committee

DAC
Disadvantaged Community

MOU
IRWM Memorandum of Understanding (2012)

Stakeholder Involvement and DAC Outreach

The Plan update approach to stakeholder involvement and outreach is presented in the *San Luis Obispo County Communications and Outreach Plan* (C&O Plan). The C&O Plan builds upon the SLO County MOU that identifies the IRWM Program Participants (Regional Water Management Group [RWMG], the WRAC, the RWMG Working Group, Implementation Affiliates and Interested Stakeholders) involved in the update and describes the planned and periodic communications that will occur between the entities.

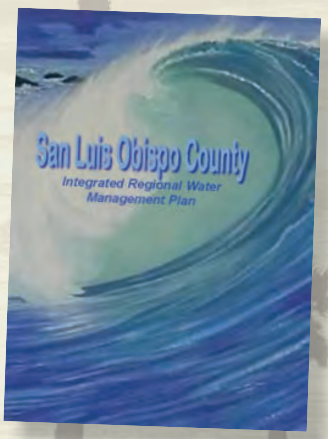
The C&O Plan also discusses:

- Roles and responsibilities of the Program Participants;
- The procedures used to manage internal and external communications for the project in order to actively engage stakeholders and disadvantaged communities;
- The decision making structure and appeal process;
- DAC outreach approach including sub-regional visioning workshops.

IRWM Plan Update

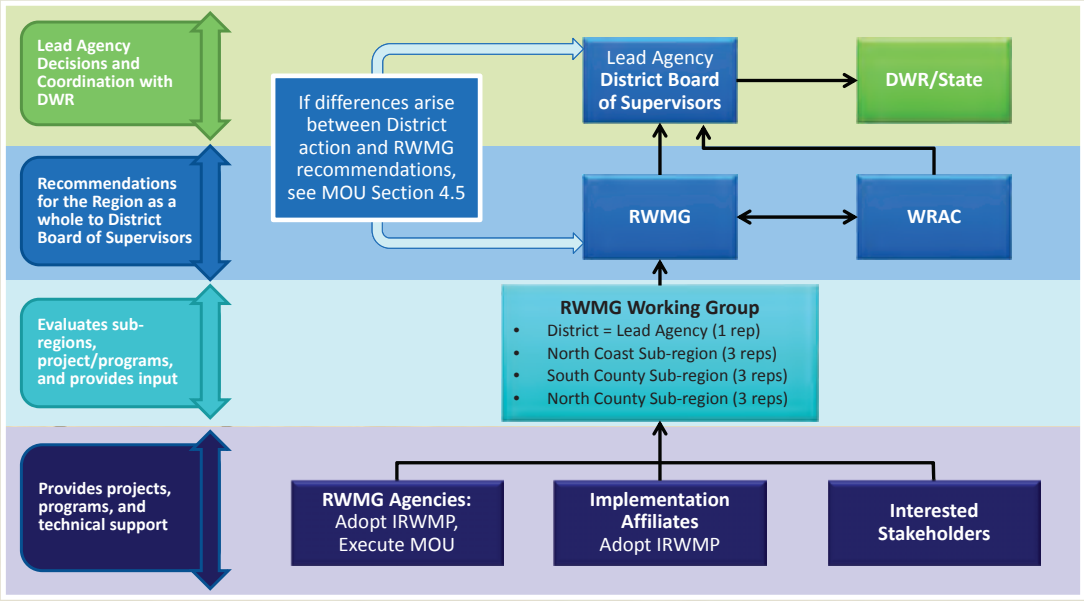
The objective of the 2007 Plan was to develop strategies that balance future water demands with available supplies and maximize the overall beneficial use of water throughout the Region. To update this plan and meet new DWR guidelines, by working with the RWMG and RWMG Working Group through the following activities:

- Revisit and enhance the Plan to meet all current Integrated Regional Water Management Plan (IRWMP) requirements and update priorities
- Coordinate RWMG meetings and subregional workshops to encourage greater participation of local agencies, interested stakeholders, and DACs
- Integrate floodwater and stormwater management into the existing Plan water supply framework
- Add a salt and nutrient management overview, working closely with stakeholders and the Central Coast Regional Water Quality Control Board
- Incorporate a climate change and greenhouse gas evaluation built on previous work in the Region
- Incorporate promising projects that address regional objectives and are ready for implementation grant application or need additional pre-design and pre-Environmental Impact Report (EIR) work to provide for grant readiness



The San Luis Obispo County 2007 Integrated Regional Water Management Plan

IRWM Plan Update Decision Making Process



IRWM Plan Update Schedule

Task Name	Q1 13			Q2 13			Q3 13			Q4 13			Q1 14			Q2 14		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Task 1: Update Governance Section																		
Task 2: Update Region Description																		
Task 3: Update Plan Objectives																		
Task 4: Develop Resource Management Strategies Sections																		
Task 5: Prepare Project Review and Selection Section																		
Task 6: Update Impacts and Benefits Section																		
Task 7: Update Plan Performance and Monitoring Section																		
Task 8: Update Data Management Section																		
Task 9: Update Finance Section																		
Task 10: Update Technical Analysis Section																		
Task 11: Update Relation to Local Water Planning Section																		
Task 12: Update Relation to Local Land Use Planning Section																		
Task 13: Update Stakeholder Involvement Section																		
Task 14: Update Coordination Section																		
Task 15: Perform Climate Change Analyses																		
Task 16: Engage Stakeholders in IRWM Plan Update		S		S W			S			S W			S W			S		
Task 17: Engage Disadvantage Communities in IRWM Plan Update																		
Task 18: Watershed Management Planning																		
Task 19: Salt and Nutrient and Recycled Planning																		
Task 20: Compile Updated IRWM Plan														D		F		A
Task 21: Project Management	K		RQ		R	Q			RQ		R	Q			RQ		R	Q
Task 22: Technical Review QA/QC																		
Optional Task: Implementation Grant Preparation			G															

First 90 Days

Project Coordination Meetings: K–Kickoff Meeting (1) S–Sub-Regional Workshops (4) W–WRAC Briefing (3) R–Regional Water Management Group and Working Group Meetings (6)

Project Deliverables: D–Draft Plan F–Final Plan Q–Quarterly Reports (for DWR) A–Plan Adoption G–Grant Submittal (optional)

SAN LUIS REGION'S IRWM PLAN VISION STATEMENT

The San Luis Integrated Regional Water Management Plan seeks to enhance regional cooperation promoting sustainable water resource management while balancing economic, environmental and cultural values, and property rights; recognizing the role of regulatory agencies and the autonomy of individual jurisdictions.

PROJECT CONTACTS

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

Carolyn Berg, *San Luis Obispo County Department of Public Works*
cberg@co.slo.ca.us
(805) 781-5536

Courtney Howard, *San Luis Obispo County Department of Public Works*
choward@co.slo.ca.us
(805) 781-1016

REGIONAL WATER MANAGEMENT GROUP

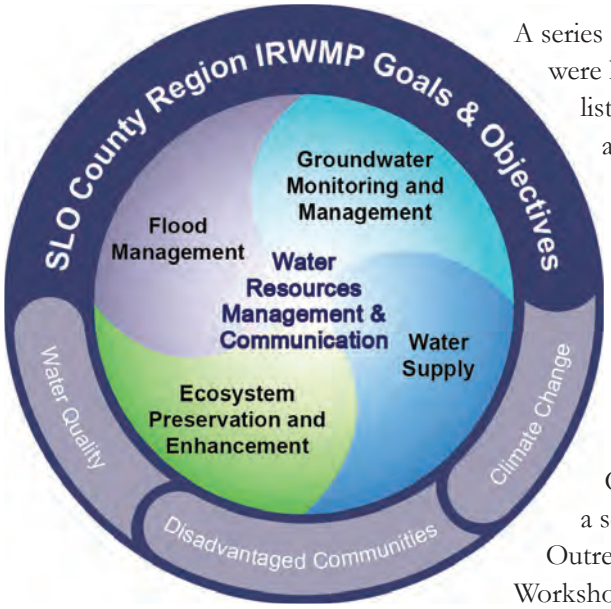
San Luis Obispo County
San Luis Obispo County Flood Control and Water Conservation District
California Men's Colony
City of Arroyo Grande
City of Grover Beach
City of Morro Bay
City of Paso Robles
City of Pismo Beach
City of San Luis Obispo
Central Coast Salmon Enhancement
Coastal San Luis Resource Conservation District
Land Conservancy
Los Osos CSD
Morro Bay National Estuary Program
Nipomo CSD
Oceano CSD
Templeton CSD
San Miguel CSD
San Simeon CSD
Upper Salinas - Las Tablas Resource Conservation District

Prepared by GEI Consultants with support from Fugro Consultants, Dudek, Gutierrez Consultants, and Hollenbeck Consulting

VOLUME 2—APRIL 2013

San Luis Obispo IRWM Plan Update

Public Outreach and Workshops



A series of meetings and workshops were held in March 2013 (see list of meetings) to reach out and engage stakeholders in the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Update. In addition to the initial Regional Water Management Group (RWMG) meeting to kick off the San Luis Obispo IRWM Plan Update, a series of Stakeholder/DAC Outreach Meetings and Subregional Workshops were conducted to seek stakeholder input to identify the most pressing water issues in the Region. As part of the Plan Update, the Region has been divided into three Sub-Regions to better account for the geographic and hydrologic variations within the Region. The three subregions are based on the County Master Water Report which identified the North Coast, North County, and South County Subregions.

A total of six Stakeholder/DAC Outreach meetings were held between March 18th to 22nd, to introduce the IRWM Plan Update. The following week, three Sub-Region workshops were held to identify the water issues within each sub-region, and begin the process to review and update the goals and objectives from the past IRWM Plan. This brochure identifies the water issues identified during these meetings and workshops for each subregion, and for the Plan Area.

IRWM Plan Update Workshops

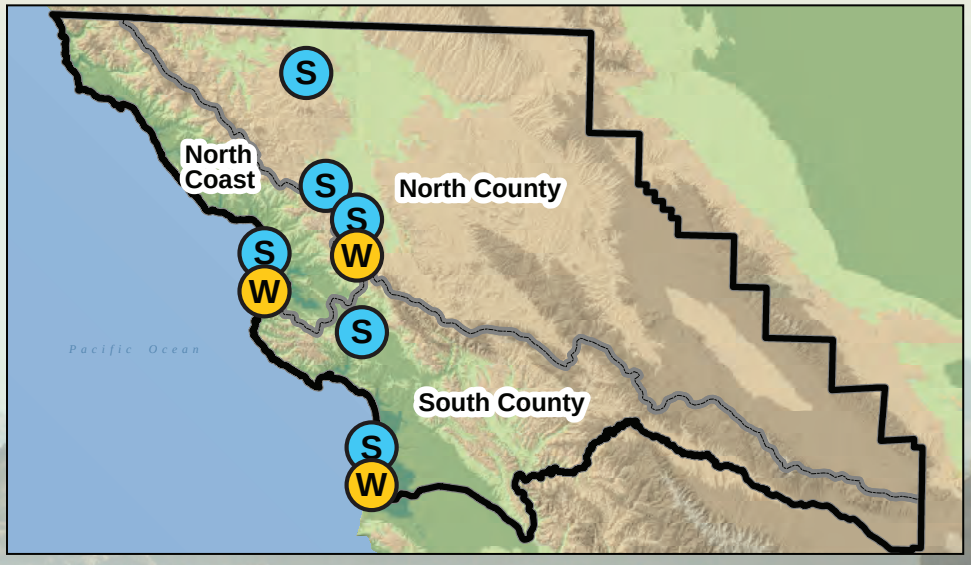
COMMUNITY STAKEHOLDER MEETINGS TO INTRODUCE THE IRWM PROGRAM WERE HELD AT

- Oceano
- San Luis Obispo
- Atascadero
- Morro Bay
- San Miguel
- Paso Robles

SUB-REGIONAL WORKSHOPS TO DISCUSS WATER ISSUES AND IRWM GOALS/OBJECTIVES WERE HELD AT

- South County Sub-Region
- North Coast Sub-Region
- North County Sub-Region

LOCATION OF SUB-REGIONAL MEETINGS AND WORKSHOPS



Outreach and Issue Identification

A survey was conducted at each of the Sub-region workshops asking the stakeholders to identify the three most important and pressing water issues in the sub-region. These results of these surveys were tabulated and are presented on the graphs below. Based on this input, an updated set of IRWM Plan Goals have been identified which include:

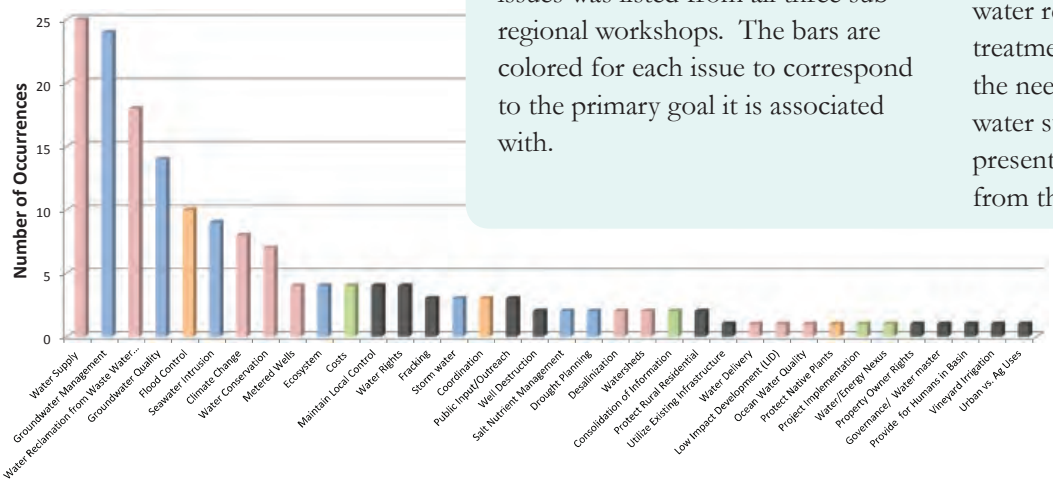
- Water Supply
- Flood Management
- Groundwater Monitoring and Management
- Ecosystem and Watershed
- Water Resources Management and Communication

It should be noted that Water Quality (which was included as a goal in the 2007 Plan) is included in a variety of objectives in each of the goals to address specific issues within each goal and better represent water quality issues within each subregion.

REGION ISSUES

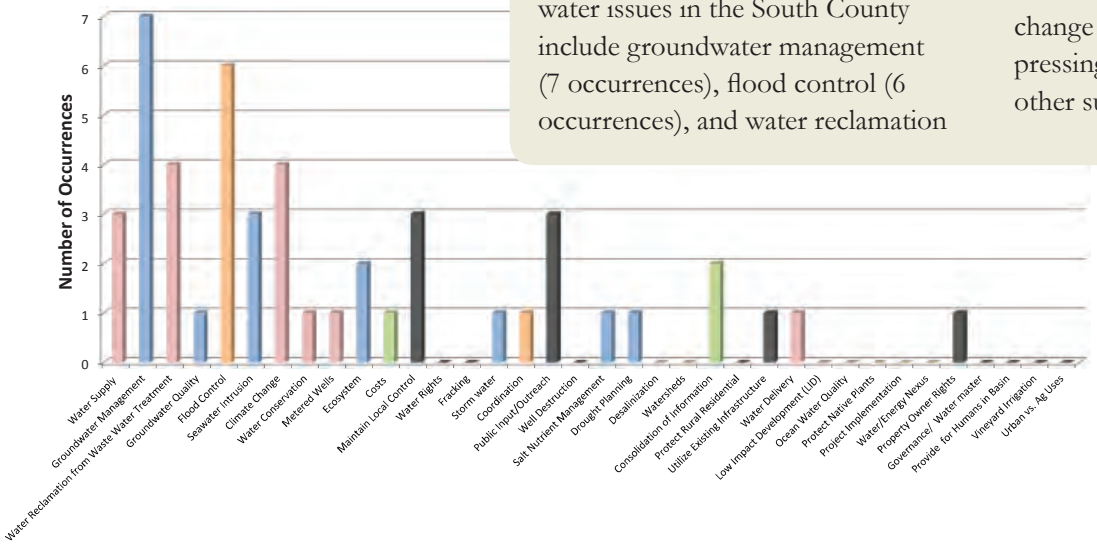
This graph below identifies the number of occurrence each water issues was listed from all three sub-regional workshops. The bars are colored for each issue to correspond to the primary goal it is associated with.

The three issues with the largest number of occurrences, water supply (25 occurrences), groundwater management (24 occurrences), and water reclamation from waste water treatment (18 occurrences), represent the need for improving the overall water supply for the region by presenting the Sub-regional variations from the stakeholder's perspectives.

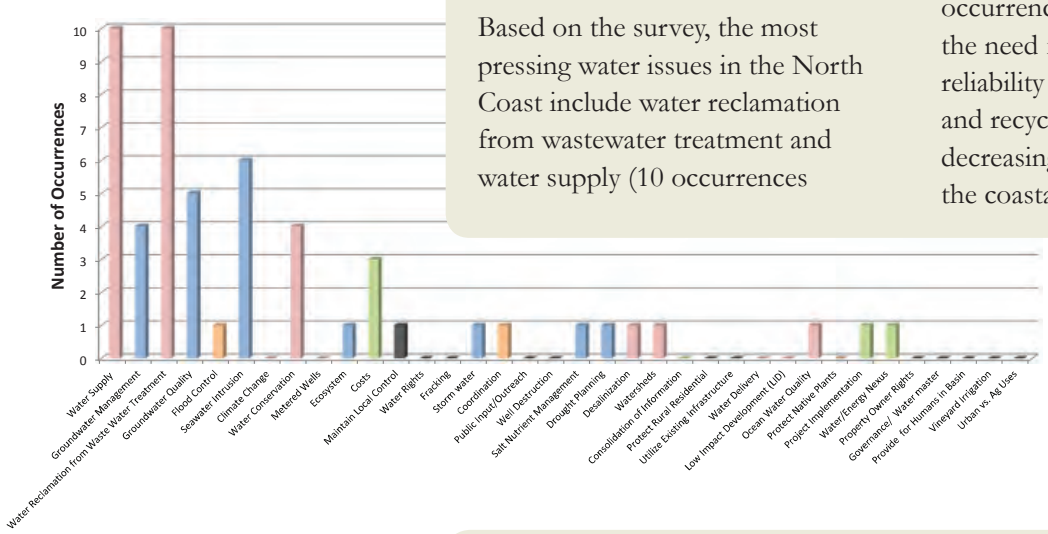


SOUTH COUNTY

Based on the survey, the most pressing water issues in the South County include groundwater management (7 occurrences), flood control (6 occurrences), and water reclamation from wastewater treatment and climate change (4 occurrences each). Flood control and the impacts of climate change were identified as more pressing issues here compared to the other sub-regions.

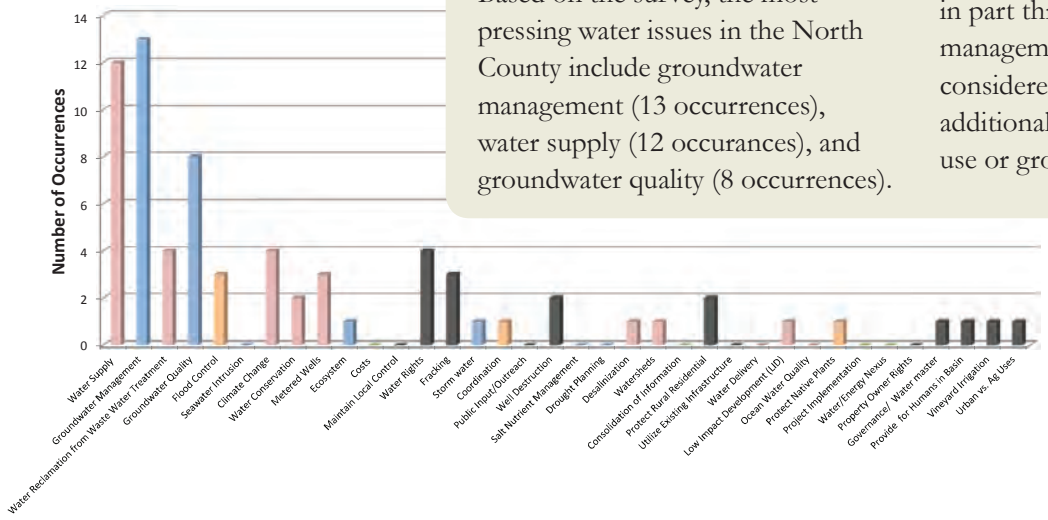


NORTH COAST



Based on the survey, the most pressing water issues in the North Coast include water reclamation from wastewater treatment and water supply (10 occurrences each), and seawater intrusion (6 occurrences). These issues reflect the need for increasing water supply reliability in part through water reuse and recycling opportunities and decreasing groundwater pumping in the coastal groundwater basins.

NORTH COUNTY



Based on the survey, the most pressing water issues in the North County include groundwater management (13 occurrences), water supply (12 occurances), and groundwater quality (8 occurrences). These issues reflect the need for increasing the overall water supply in part through better groundwater management which is generally considered to include providing additional supplies for conjunctive use or groundwater banking.

LEGEND

- = *Water Quality*
- = *Water Supply*
- = *Ecosystem Preservation and Restoration*
- = *Groundwater Monitoring and Management*
- = *Flood Control*
- = *Water Management*

NEXT STEPS

During April and May, the RWMG is developing the Regional goals and objectives and working with the Sub-Region Work Groups and stakeholders to develop the sub-regional priorities. The draft goals and objectives technical memorandum has been provided to all interested parties via email, and is available on the IRWMP website, **www.slocountywater.org**.

The **next RWMG meeting** is scheduled for **June 5, 2013** from 9am -12pm at the San Luis Obispo City/ County Library Community Room.

SAN LUIS REGION'S IRWM PLAN VISION STATEMENT

The San Luis Integrated Regional Water Management Plan seeks to enhance regional cooperation promoting sustainable water resource management while balancing economic, environmental and cultural values, and property rights; recognizing the role of regulatory agencies and the autonomy of individual jurisdictions.

For additional information about the IRWM Plan Update and access to the electronic documents associated with this effort, visit:

http://www.slocountywater.org/

PROJECT CONTACTS

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

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REGIONAL WATER MANAGEMENT GROUP

San Luis Obispo County
San Luis Obispo County Flood Control and Water Conservation District
California Men's Colony
City of Arroyo Grande
City of Grover Beach
City of Morro Bay
City of Paso Robles
City of Pismo Beach
City of San Luis Obispo
Central Coast Salmon Enhancement
Coastal San Luis Resource Conservation District
Heritage Ranch CSD
Land Conservancy
Los Osos CSD
Morro Bay National Estuary Program
Nipomo CSD
Oceano CSD
Templeton CSD
San Miguel CSD
San Simeon CSD
S&T Mutual Water Company
Upper Salinas - Las Tablas Resource Conservation District

Prepared by GEI Consultants with support from Fugro Consultants, Dudek, Gutierrez Consultants, and Hollenbeck Consulting

VOLUME 3—APRIL 2013–JUNE 2013

San Luis Obispo IRWM Plan Update

A Report on Current Activities

Upcoming Events

CALL FOR PROJECTS COMING SOON!

IRWM Program Participants, the RWMG will be collecting project/program solicitation forms in June/July. Be on the look out for Call for Projects

July 2013 (Date TBD)

Sub-region Workshops in North Coast, North County, and South County

Key topics include: Sub-region priorities and project review process and criteria

August 2013 (Date TBD)

RWMG Meeting

Key topics include: project review process and criteria, initial project selection screening, and resource management strategies

Completed–Implementation Grant Update

The San Luis Obispo County Flood Control and Conservation District submitted a Proposition 84 Round 2 Implementation Grant to the California Department of Water Resources requesting $7.5 million to fund a portion of six separate projects with a total project cost of $22.5 million. The projects included in the application were selected from a list of over 20 projects identified at the Project Solicitation Workshop held on October 3, 2012. These projects address several critical water resources issues in the area and contribute towards meeting the current IRWM Plan Objectives. Several water resources management actions emerged to address critical water issues including: stabilize declining levels in the Paso Robles Groundwater Basin; improve environmental stewardship; and address critical water supply and quality needs of disadvantaged communities (DAC). Five of the six projects are shown on the map below. The application also included a feasibility and design project to help meet critical water needs in San Simeon (see note below). The Department of Water Resources expects to release final funding awards in Fall 2013.

There will be another call for projects/programs this coming quarter. San Luis Obispo County stakeholders will be asked to submit the project/program solicitation "short" forms defining projects/programs that help to meet the IRWM Plan Goals and Objectives.

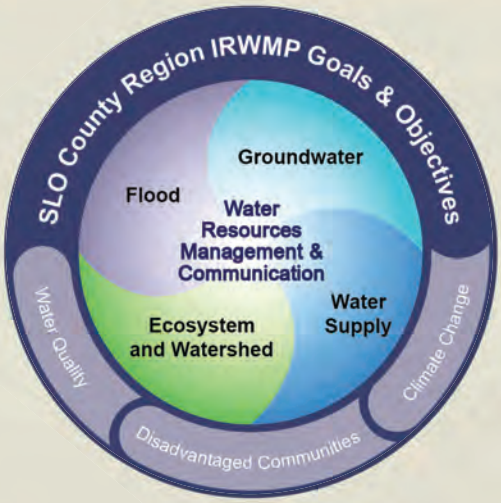
Location of Projects in Implementation Grant Application

A DAC IS DEFINED BY DWR AS FOLLOWS:

"For the purposes of Proposition 84 funding, a DAC is defined as "a community with a median household income (MHI) less than 80% of the Statewide average." There is a financial opportunity for most RWMGs to seek out DACs in their region, as most State grants either give special consideration or preferences for projects that serve DACs, or have funding percentages set-aside for projects that support DACs." The IRWM Region contains four DACs: San Simeon, Oceano, San Luis Obispo, and San Miguel.

In Progress–Goals and Objectives

The draft Goals and Objectives Section of the San Luis Obispo IRWM Plan Update is nearing the draft final stage in the approval process. A series of meetings and workshops were held in March 2013 to reach out and engage stakeholders in the update activities of the San Luis Obispo IRWM Plan. In addition to the initial Regional Water Management Group (RWMG) meeting to kick off the San Luis Obispo IRWM Plan Update, a series of Stakeholder/DAC Outreach Meetings and Sub-regional Workshops were conducted to seek stakeholder input to identify the most pressing water issues in the Region which were used as the basis for updating the Goals and Objectives. Overarching Goals were defined for the Region's flood management, groundwater management, water supply, ecosystem and watersheds, and water resource management and communication. The Goals and Objectives can be found at www.slocountywater.org.



Next Steps–Sub-region Priorities & Project Selection Criteria

In this next quarter, steps for the IRWM Plan Update will require input from the Project Participants and Stakeholders in the development of Sub-region Priorities, development of the Project Solicitation and Project Selection Criteria and the call for Project Abstracts, due by July 31, 2013.

The Sub-region Priorities are an extension of the Goals and Objectives and are intended to prioritize the regional objectives as they relate to each sub-region. In this way, local projects can be formed around tangible objectives which are meaningful to the Sub-region, and will inherently result in physical benefits and synergies with the regional goals and objectives.

The Project Solicitation process will be conducted in two phases: an abstract phase and a full application phase. Both will require a commitment by the project proponents to provide the highest quality of information regarding projects or project ideas.

Project Selection Criteria are developed to identify projects and programs that help to meet regional objectives and sub-regional priorities, and to rank projects/programs that are ready to proceed, and then for the region overall.

Some of the Project Selection Criteria includes meeting:

- Statewide Priorities
- Sub-regional Priorities
- IRWM Plan Goals and Objectives
- Resource Management Strategies
- Project Readiness and Agency Commitment

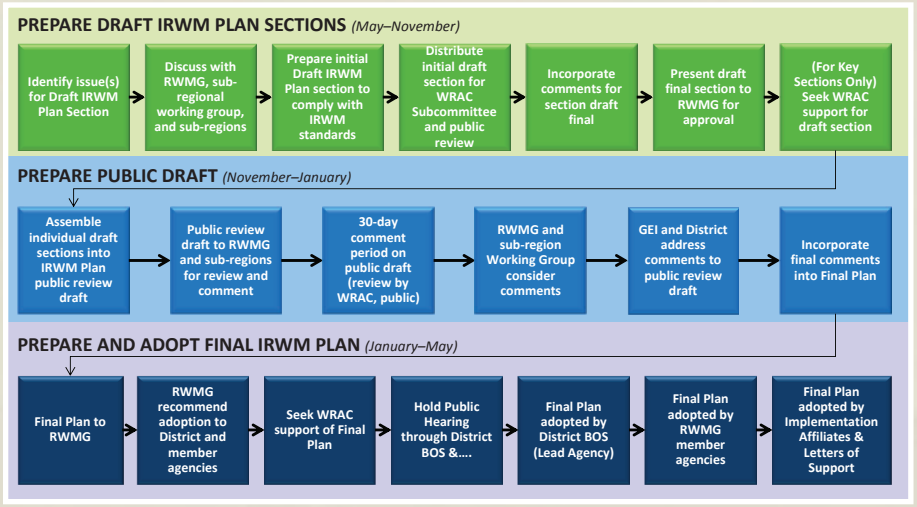
IRWM Plan Update Process

The IRWM Plan Update has an aggressive schedule that is generally organized into three parts as shown on the Process Flowchart figure.

Draft IRWM Plan Sections – This is scheduled for May –November of 2013. These draft sections are prepared at the direction of the RWMG with input provided by stakeholders and interested parties through the Sub-regional Workshops and public comment period.

Public Draft – The preparation of the Public Draft IRWM Plan is scheduled for November 2013 – January 2014. The public draft will assemble the draft sections into a single document. Once assembled and reviewed by the RWMG and the Sub-regions, it will be made available for a 30-Day review period.

Final Plan – Comments received on the Public Draft will be reviewed for incorporating into the Final Plan. The Final Plan will be provided to the RWMG for a recommendation to adopt. The Lead Agency (SLO Flood Control District Board of Supervisors) will hold a public hearing and adopt the Plan. Subsequently, the RWMG member agencies and Implementation Affiliates will adopt the Plan. Letters of support will be welcomed from any Interested Stakeholders.



IRWM Plan Update Process Flowchart

IRWM Plan Update Schedule

Task Name	Q1 13			Q2 13			Q3 13			Q4 13			Q1 14			Q2 14		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Task 1: Update Governance Section																		
Task 2: Update Region Description																		
Task 3: Update Plan Objectives																		
Task 4: Develop Resource Management Strategies Sections																		
Task 5: Prepare Project Review and Selection Section																		
Task 6: Update Impacts and Benefits Section																		
Task 7: Update Plan Performance and Monitoring Section																		
Task 8: Update Data Management Section																		
Task 9: Update Finance Section																		
Task 10: Update Technical Analysis Section																		
Task 11: Update Relation to Local Water Planning Section																		
Task 12: Update Relation to Local Land Use Planning Section																		
Task 13: Update Stakeholder Involvement Section																		
Task 14: Update Coordination Section																		
Task 15: Perform Climate Change Analyses																		
Task 16: Engage Stakeholders in IRWM Plan Update		S			S W			S			S W			S W			S	
Task 17: Engage Disadvantage Communities in IRWM Plan Update																		
Task 18: Watershed Management Planning																		
Task 19: Salt and Nutrient and Recycled Planning																		
Task 20: Compile Updated IRWM Plan														D		F		A
Task 21: Project Management	K		RQ		R	Q			RQ		R	Q			RQ		R	Q
Task 22: Technical Review QA/QC																		
Optional Task: Implementation Grant Preparation			G															

Project Coordination Meetings: K–Kickoff Meeting (1) S–Sub-Regional Workshops (4) W–WRAC Briefing (3) R–Regional Water Management Group and Working Group Meetings (6)
Project Deliverables: D–Draft Plan F–Final Plan Q–Quarterly Reports (for DWR) A–Plan Adoption G–Grant Submittal (optional)

Term Definitions

IRWM: Integrated Regional Water Management

PLAN: IRWM Plan

SLO: San Luis Obispo

REGION: SLO County IRWM Region

DISTRICT: San Luis Obispo County Flood Control & Water Conservation District

RWMG: Regional Water Management Group

WRAC: Water Resources Advisory Committee

DAC: Disadvantaged Community

MOU: IRWM Memorandum of Understanding (2012)

SAN LUIS OBISPO REGION'S DRAFT IRWM PLAN VISION AND MISSION STATEMENTS

IRWM PLAN VISION

Create a united framework among SLO County Stakeholders for sustainable water resource management.

IRWM PLAN MISSION

Facilitate regional plans, programs, and projects to further sustainable water resource management.

For additional information about the IRWM Plan Update and access to the electronic documents associated with this effort, visit:

http://www.slocountywater.org/

PROJECT CONTACTS

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

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REGIONAL WATER MANAGEMENT GROUP

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Heritage Ranch CSD
Land Conservancy
Los Osos CSD
Morro Bay National Estuary Program
Nipomo CSD
Oceano CSD
Templeton CSD
San Miguel CSD
San Simeon CSD
S&T Mutual Water Company
Upper Salinas - Las Tablas Resource Conservation District

Prepared by GEI Consultants with support from Fugro Consultants, Dudek, Gutierrez Consultants, and Hollenbeck Consulting

San Luis Obispo IRWM Plan Update

Full Project List Finalized

SAN LUIS OBISPO REGION'S DRAFT IRWM PLAN VISION STATEMENT

Create a united framework among SLO County Stakeholders for sustainable water resource management.

IRWM PLAN MISSION

Facilitate regional plans, programs, and projects to further sustainable water resource management.

Upcoming Events

FEBRUARY 2014

- Focus Group Meeting

MARCH/APRIL 2014

- RWMG Meeting
- Public Draft Release of IRWM Plan

MAY 2014

- Collect public comments

JUNE/JULY 2014

- Address public comments

AUGUST/SEPT 2014

- Finalize and adopt IRWM Plan

Since January 2013, the Regional Water Management Group (RWMG) has been working with water users throughout the County, the San Luis Obispo County Flood Control and Water Conservation District (District), and Subregional Working Groups to prepare the San Luis Obispo County IRWM Plan Update (Plan Update). This effort has been coordinated with the Water Resources Advisory Committee to ensure the Plan Update addresses county-wide issues, as well as local issues through coordination with local agencies and the three Subregional Working Groups which represent the North County, North Coast, and South County.

PROJECTS TO IMPLEMENT THE PLAN

During the first half of 2013, the San Luis Obispo County IRWM Plan Update established goals and objectives related to water resources planning.

To achieve those goals, the region's participants' and stakeholders' implement projects and programs. Recent activity on the Plan Update included the creation of the **2013 IRWM Plan Project List** (which is presented in this brochure).

The IRWM Plan includes both planned **projects and programs**, and describes how those projects and programs address the IRWM Plan goals, and specifically how each will be implemented. The IRWM Plan also maintains a list of water resources **concepts** (projects in the preliminary or planning stages) for stakeholders to consider over long term Plan implementation.

PROJECT SOLICITATION PROCESS

San Luis Obispo County stakeholders have been actively engaged in the IRWM Plan Update's project solicitation and review process. From June to December 2013, the Project Management Team (PMT), under the direction of the Regional Water Management Group (RWMG), solicited water resources concepts and projects/programs from stakeholders. Altogether, agencies, organizations, and

individual stakeholders submitted 91 abstracts for the 2013 call for projects and programs proposed to add value to San Luis Obispo County's integrated management of water resources in the areas of water supply, groundwater management, flood management, ecosystem restoration, and general water resources management.

COMPILING THE FULL PROJECT LIST

The PMT reviewed and initially ranked the submittals in accordance with the RWMG-approved project review guidelines (follow the IRWMP quicklink on the County's Water Resources site at http://www.slocountywater.org/). Some submittals were either not IRWM-related or were integrated into another project submittal. Of the 91 submittals, 81 were added to the Full Project List - 52 of those were classified as concepts and 29 were classified as projects/programs. Concepts, programs, and projects from the 2007 IRWM Plan were also reviewed, 34 of which were added to the Full Project List as well. As a result of this project screening, the 2013 IRWM Plan Full Project List includes 115 projects.

CREATING THE FINAL IRWM PLAN PROJECT LIST

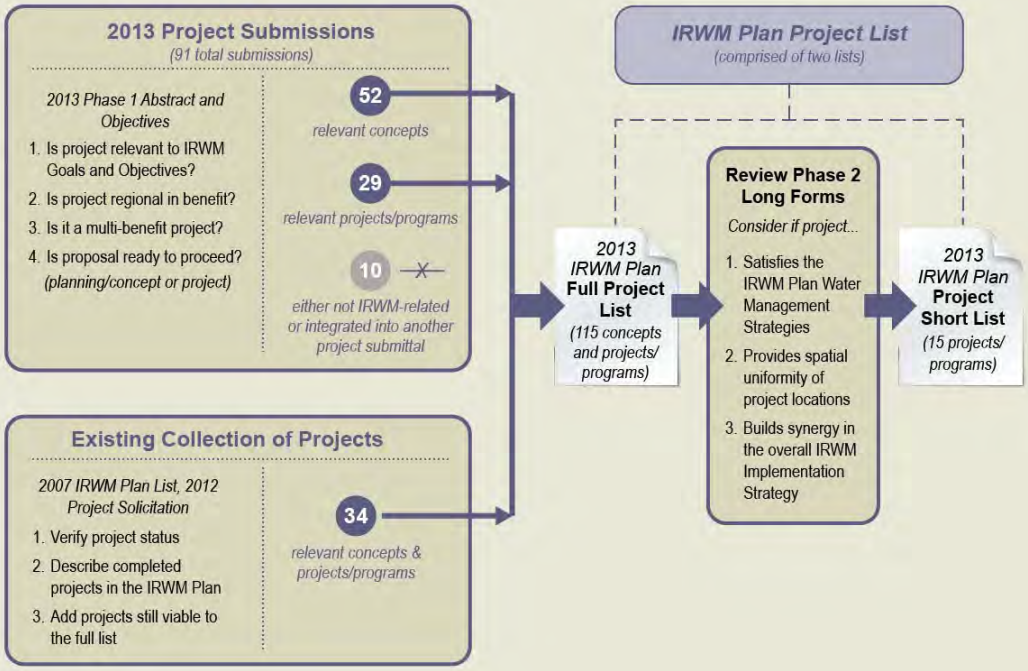
At the October 2nd RWMG meeting, the PMT presented the IRWM review process and resulting Full Project List. Various integration opportunities were noted at that meeting. The RWMG asked the RWMG Working Group (and Project Sponsors) to meet and integrate/finalize the IRWM Plan Project List (includes both the Full Project List and Project Short List).

The RWMG Working Group held that public meeting on October 16th. The whole process and resulting integrated IRWM Project List was published and sent out to the RWMG and Interested Stakeholders in order to seek input, inform the public, and solicit comments. This brochure memorializes the results of this six month process to develop a Full Project List and Project Short List.

Why Two Lists?

The purpose of having two lists is to satisfy the State's requirements of an IRWM Plan (Final IRWM Project List), and to constantly maintain a list of the region's most current projects for use in selection upon notification of regional or local funding opportunities (Full Project List). The Full Project List will be an appendix to the IRWM Plan, and will be updated on an as-needed basis (at a minimum of every two years). All projects included on this list are considered to be a part of the IRWM Plan and will be considered for future funding and implementation opportunities.

The figure on page 3 visually describes how the collection of projects from the 2007 IRWM Plan, the 2012 project solicitation, the Phase 1 2013 Project Abstracts (and Objective Worksheet), and the Phase 2 Project Long Forms were combined to form the Full Project List and which was further screened to create the Project Short List.



Forming the IRWM Plan Full Project List and Project Short List

FULL PROJECT LIST

The Full Project List below identifies the 115 IRWMP-related concepts and projects/ programs by Sub-Region, and includes the project sponsor. Projects followed by an asterisk also show up on the Project Short List.

Full Project List

#	Project, *Sponsor*
Multi-Regional Submittals	
1	Conservation Planning for Coastal Watersheds, *Coastal San Luis Resource Conservation District*
2	Agricultural Water Management and Conservation Program, *Coastal San Luis Resource Conservation District*
3	Closing Priority Conservation Data Gaps, *Coastal San Luis Resource Conservation District*
4	Countywide Watershed and Creek Signage, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*
5	Countywide Watershed Planning Phase II, *Coastal San Luis Resource Conservation District*
6	Desalination Study, *Various*
7	Development of Basic Salt & Nutrient Management Plans, *Various*
8	Feasibility Study for Recycled Water for Agricultural Use, *Coastal San Luis Resource Conservation District*
9	Federal Flood Insurance Program Compliance Study, *San Luis Obispo County Flood Control and Water Conservation District*
10	Invasive Species Program, *County of San Luis Obispo*
11	Livestock & Land Program*, *Coastal San Luis Resource Conservation District (CSLRCD) and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*
12	LID Pilot Program*, *US-LTRCD*
13	Mined Lands Remediation Program, *San Luis Obispo County Flood Control and Water Conservation District*
14	Raising Santa Margarita Dam, *Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)*
15	Rancher 2 Rancher Program, *Coastal San Luis Resource Conservation District*
16	Regional Implementation of Groundwater Management Activities, *Various (depends on basin)*
17	SLO Communities Water Enhancement Program, *Central Coast Salmon Enhancement*
18	Stormwater Rewards Rebate Program, *Coastal San Luis Resource Conservation District*

Full Project List, *cont.*

#	Project, *Sponsor*
19	Urban Landscape Water Management and Conservation Program, *Coastal San Luis Resource Conservation District*
20	Water Conservation Corps, *California Conservation Corps (CCC) – San Luis Obispo Center _ (Other Partners TBD)*
21	Waterways Vegetation Management Program, *San Luis Obispo County Flood Control and Water Conservation District*
22	Wetland and Vernal Pool Mapping, *County of San Luis Obispo*
North Coast Submittals	
23	8th Street Upper Aquifer Well and Nitrate Removal Facility*, *Los Osos Community Services District*
24	Cambria CSD Water System Improvements, *Cambria CSD*
25	Chorro and Morro Groundwater Basin Management Plans, *Morro Bay National Estuary Program*
26	Chorro Creek Ecological Reserve Floodplain Restoration Project, *Morro Bay National Estuary Program*
27	Chorro Valley Master Water and Waste Water Plan, *City of Morro Bay*
28	Cambria Pump Station, County of San Luis Obispo, *Department of Public Works*
29	Conservation Planning for North Coast Landowners, *US-LTRCD*
30	County Service Area 10 – Clearwell Tank Roof Replacement, *San Luis Obispo County Flood Control & Water Conservation District*
31	County Service Area 10A Water System Improvements (Integrates 2 submittals: New 200k Gallon Storage Tank; and Storage Tank Roof Replacement), *San Luis Obispo County Flood Control & Water Conservation District*
32	Los Osos Community Stormwater Master Plan, *Los Osos CSD*
33	Los Osos Landfill Remediation – Pump and Treat, *County of San Luis Obispo*
34	Los Osos Water System Improvements, *Los Osos CSD*
35	Los Padres CCC Center – Stormwater LID Treatment Project*, *Morro Bay National Estuary Program*
36	Morro Bay–Cayucos Sanitation District Salt and Nutrient Management Plan, *City of Morro Bay*
37	Morro Bay NPDES Illicit Discharge Detection and Elimination Ordinance, *City of Morro Bay*
38	Morro Bay Wastewater Treatment Facility Upgrade, *City of Morro Bay*
39	North Coast Watershed Plans, *US-LTRCD*
40	Rehabilitation–Installation of Retention Ponds in North Coast (store & release), *US-LTRCD*
41	S&T Mutual Water Co–Golden State Water Co Intertie, *S&T Mutual Water Company*
42	San Simeon CSD Water System Improvements, *San Simeon CSD*
43	San Simeon Small Scale Recycled Water Project, *San Simeon CSD*
44	San Simeon Wastewater Treatment Facility Upgrade, *San Simeon CSD*
45	SLO County Drought Protection & Climate Change Preparedness Pilot Project, *GREENSPACE – The Cambria Land Trust*
46	Streambank Stabilization & Restoration in Santa Rosa Creek, *US-LTRCD*
47	Water Conservation Partnerships in Chorro Valley, *Morro Bay National Estuary Program*
North County Submittals	
48	21ST Street Reservoir Reconstruction, *City of Paso Robles*
49	Atascadero Creek Watershed Management Plan, *City of Atascadero*
50	Atascadero Lake Treatment System, *City of Atascadero*
51	Atascadero Wastewater System Upgrade, *City of Atascadero*
52	Attiyeh Ranch Conservation Easement Project*, *Land Conservancy*
53	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction*, *City of Paso Robles*
54	Community Based Social Marketing – Paso Groundwater Basin Community (water quality & quantity)*, *US-LTRCD*
55	County Service Area 23 (CSA 23) Water Reliability Program, *County of San Luis Obispo – Public Works Dept*
56	County Service Area 7A – Oak Shores – Interception Sewer System Replacement, *County of San Luis Obispo*
57	Creston State Water Project Turnout, *Requires formation of Water Purveying Entity*
58	CSA 16 (Shandon) Water System Improvements (integrate 4 submittals: Waterline – Replace Centre Street; Waterline – Upsize 1st Street; Waterline Loop N. 2nd to N. 3rd Streets; New Storage Tank), *San Luis Obispo County Flood Control & Water Conservation District*

Full Project List, *cont.*

#	Project, *Sponsor*
59	Emergency Water Turnout for Heritage Ranch CSD, *San Luis Obispo County Flood Control & Water Conservation District*
60	Evaluating Land-Surface Subsidence and Potential Groundwater Storage Losses as Part of Assessing Proposed Water Banking Sites in Paso Robles Groundwater Basin, *USGS*
61	Groundwater Monitoring Program and Modeling Program for the Paso Robles Groundwater Basin, *Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)*
62	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Ag BMPs* (integrated 2 submittals: Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin; North County Precision Irrigation Research Program_ Precision Agriculture), *Vineyard Team & US-LTRCD*
63	Interlake Tunnel Project, *Nacimiento Regional Watershed Management Advisory Committee*
64	Nature Center & Conservation Hub, *US-LTRCD*
65	North County Fertilizer Regions Precision Agriculture*, *US-LTRCD*
66	North County Strategic Plan, *Institute for Advanced Technology & Public Policy, Cal Poly, San Luis Obispo*
67	Off Stream Storage within the North County, *Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)*
68	Phase 2 – Lake Nacimiento Potable Water Treatment Plant, *City of Paso Robles*
69	Pilot Project Impact of Santa Margarita Lake Discharges on Groundwater Basin, *Unknown*
70	Recycled Water Treatment and Distribution System – Phase 1, *City of Paso Robles*
71	Recycled Water Treatment and Distribution System – Phases 2_3, *City of Paso Robles*
72	San Miguel CSD Water System Improvements*, *San Miguel CSD*
73	San Miguel Flood Control Program, *San Luis Obispo County Flood Control and Water Conservation District*
74	Supplemental Water Supplies for Paso Robles Groundwater Basin (integrates 5 submittals: Community Water Systems for Subdivided Regions Overlying the Paso Robles Groundwater Basin; Irrigation Distribution System at Paso Robles Airport Area; Paso Robles Groundwater Basin Restoration and Basin Recharge; Paso Robles Groundwater Basin In-Lieu Recharge Study and Preliminary Layout), *TBD*
75	Sustain SLO North: A Water Conservation Stewardship Plan for North County, San Luis Obispo, *US-LTRCD*
76	Templeton CSD East Side Force Main and Lift Station Project, *Templeton CSD*
77	Templeton CSD Water System Improvements, *Templeton CSD*
78	Toad Creek flood control, restoration and basin recharge, *US-LTRCD*
79	Toad Creek Waterway Management Program, *SLO County Flood Control and Water Conservation District*
80	Upper Salinas River Basin Water Conservation/Conjunctive Use Project*, *Templeton CSD*
81	Upper Salinas Watershed Plans, *US-LTRCD*
82	Vertical Well Project for HRCSD, *Heritage Ranch CSD*
83	Water-wise program (with target applied irrigation rates), *US-LTRCD*
South County Submittals	
84	Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed, *Coastal San Luis Resource Conservation District*
85	Arroyo Grande Creek Channel Waterway Management Program, *San Luis Obispo County Flood Control and Water Conservation District, Central Coast Salmon Enhancement*
86	Avila Beach Wastewater System Upgrade, *Avila Beach CSD*
87	Beach Street Alley Waterline Replacement, *Oceano Community Services District*
88	Conjunctive Use and Groundwater Banking Evaluation, *Oceano Community Services District*
89	Edna Valley Groundwater Basin Study, *Various*
90	Flood Control Zone 1/1A Waterway Management Program, *San Luis Obispo County Flood Control & Water Conservation District*
91	Flood Control Zone 3 – Lopez WTP Sludge Bed 1 & 2 Upgrades, *San Luis Obispo County Flood Control & Water Conservation District*
92	Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek, *Coastal San Luis Resource Conservation District*
93	Lopez Lake Spillway Raise Project, *Zone 3 Agencies (Cities of Arroyo Grande, Grover Beach and Pismo Beach, Oceano Community Services District and County Service Area 12)*

Full Project List, *cont.*

#	Project, *Sponsor*
94	Lopez Pipeline Improvements, *Northern Cities Management Area (NCMA) Agencies: Oceano Community Services District (OCSD), City of Arroyo Grande, City of Grover Beach, City of Pismo Beach*
95	Lopez Water Project Habitat Conservation Plan, *San Luis Obispo County Flood Control and Water Conservation District*
96	Lopez Water Treatment Plant Membrane Rack Addition*, *San Luis Obispo County Flood Control and Water Conservation District*
97	Mapping the saltwater-freshwater interface in southern San Luis Obispo and northern Santa Barbara County, California, *USGS*
98	Meadow Creek Restoration Plan (integrates: Meadow Creek Flood Reduction), *Central Coast Salmon Enhancement (and Coastal San Luis RCD)*
99	Mid-Higuera Bypass , *City of San Luis Obispo*
100	Nacimiento Water Project Energy Recovery Turbine, *City of San Luis Obispo*
101	Nipomo Area Water Reuse Plan, *Nipomo CSD*
102	Nipomo CSD Supplemental Water Project, *Nipomo CSD*
103	Oceano Community Services District Water System Improvements, *Oceano CSD*
104	Oceano Drainage Improvement Project – Hwy 1 & 13th Street*, *County of San Luis Obispo, Department of Public Works*
105	On-Farm Water Quality Enhancement and Conservation Plan for Coastal Watersheds, *CSLRCD*
106	Pismo Beach Recycled Water Treatment Plant*, *City of Pismo Beach*
107	Pismo Creek Watershed Program, *Central Coast Salmon Enhancement*
108	Recycled Water Distribution System Expansion*, *City of San Luis Obispo*
109	Recycled Water Master Plan Update, *City of San Luis Obispo*
110	Regional Recycled Water System (Pismo Beach and SSLOCSD) (integrates Pismo Beach Recycled Water System), *City of Pismo Beach*
111	San Miguelito Wastewater System Upgrade, *San Miguelito MWC*
112	Santa Maria Groundwater Basin Model, *NCMA Agencies (Oceano Community Services District, Cities of Arroyo Grande, Grover Beach and Pismo Beach), Nipomo CSD*
113	See Canyon Watershed Management Plan, *Central Coast Salmon Enhancement*
114	Southland Wastewater Treatment Facility Upgrade, *Nipomo CSD*
115	Steelhead 4(d) Program, *Central Coast Salmon Enhancement*

PROJECT SHORT LIST

The Project Short List identifies those projects/programs that are technically feasible and strategically suited to be fully described in the IRWM Plan. Many projects were not included because they did not provide enough data or did not address enough objectives (per State Guidelines) to adequately incorporate information throughout the IRWM Plan Update itself. That differentiation does not note a project as being less significant. It simply means that the project will not be incorporated into various IRWM Plan sections. All projects will still remain on the Full Project List, and are considered to be supported by this IRWM Plan.

Final IRWM Project Short List

#	Project, *Sponsor*	Primary Reason for Inclusion on Final IRWM Project List
1	Livestock & Land Program, *Coastal San Luis Resource Conservation District (CSLRCD) and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included for its multi-objective regional benefits and water quality enhancement while gaining private property owner volunteer participation for purposes of environmental stewardship.
2	LID Pilot Program, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included for its Low Impact Development (LID) public education and outreach, as well as providing monetary rebate incentives to private property owners to implement LID projects.
3	North County Fertilizer Regions_ Precision Agriculture, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included for its wide public educational value and regional water quality benefits through volunteer participation by private property owners with reduced fertilizer cost incentives.
4	Attiyeh Ranch Conservation Easement, *Land Conservancy*	Included for public and environmental stewardship values; both resulting in the protection of the watershed and endangered flora and fauna species in the region.

#	Project, *Sponsor*	Primary Reason for Inclusion on Final IRWM Project List
5	Upper Salinas River Basin Water Conservation/Conjunctive Use Project, *Templeton CSD*	Included because of the multi-objective elements of improving recycled wastewater for higher beneficial use as a source for groundwater recharge and potable supplies in the Salinas River Underflow.
6	Community Based Social Marketing, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included due to its low cost high education value over a broad region, enlisting support of private property owners to take ownership of their environment, and improving sustainable farming and business practices.
7	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices, *Vineyard Team and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	The project is a teamed effort by two project sponsors. Included for its high public educational value and regional water demand reduction benefits over a critically impacted groundwater basin, and offers change in irrigation practices through volunteer participation by private property owners with reduced pumping cost incentives.
8	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction, *City of Paso Robles*	Included due to its maximizing existing supplemental water supplies in a critically impacted groundwater basin, and use as a conjunctive supply for drought protection and effects of climate change in the region.
9	San Miguel Critical Water System Improvements, *San Miguel CSD*	Included due to the Disadvantaged Community (DAC) need for critical water system improvements.
10	8th Street Upper Aquifer Well and Nitrate Removal Facility, *Los Osos Community Services District*	Included for its multi-objective values of managing a critical groundwater basin subjected to continuous degradation of water quality from septic systems (nitrates) and sea water intrusion, and the local collaboration between the agencies and public using a vetted management plan.
11	Los Padres CCC Center - Stormwater LID Treatment Project, *Morro Bay National Estuary Program*	Included for its multi-objective benefits of environmental stewardship, LID educational opportunities, and the conversion of private lands to restore a rich ecosystem of flora and fauna.
12	Oceano Drainage Improvement Project - Hwy 1 & 13th Street, *County of San Luis Obispo, Department of Public Works*	Included due to multi-objective elements of providing a DAC with health and safety along with water quality, groundwater recharge, and flood attenuation.
13	Lopez Water Treatment Plant Membrane Rack Addition, *San Luis Obispo County Flood Control and Water Conservation District*	Included due to increased use of existing surface water supplies and reduction in groundwater use in a constrained groundwater basin shared by multiple agencies and private well owners.
14	Recycle Water Distribution System Expansion, *City of San Luis Obispo*	Included due to increased recycled water use in a DAC with the benefit of reducing groundwater pumping in a constrained groundwater basin.
15	Pismo Beach Recycled Water Project, *Cities of Arroyo Grande, Grover Beach and Pismo Beach and the Oceano Community Services District*	Included due to increased recycled water use through construction of a recycled water treatment plant. Recycled water will be made available for the South County Sub-Region using the existing wastewater treatment facility and construction of a recycled water distribution system.

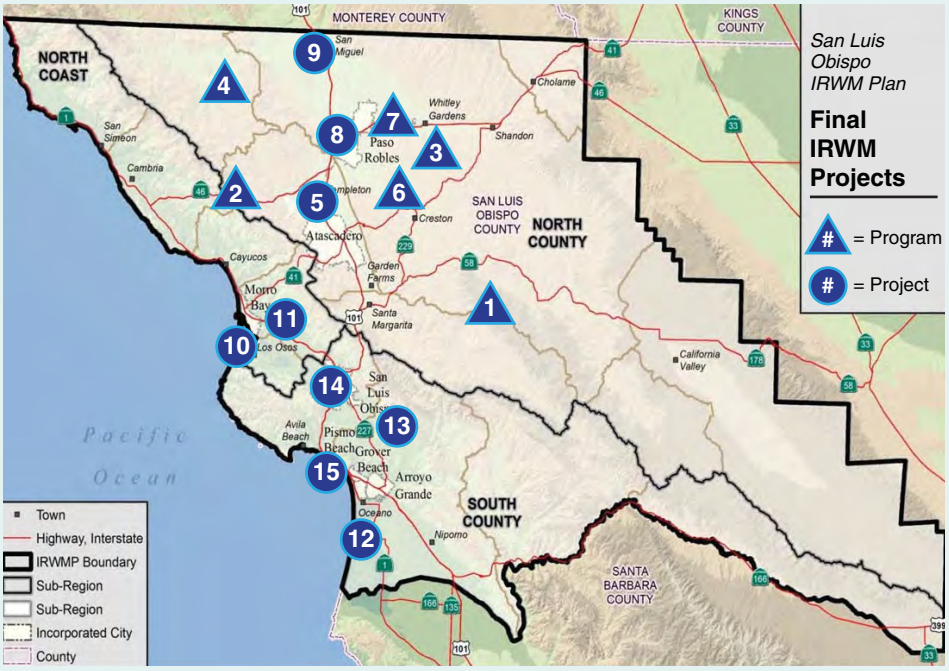
A detailed project analysis compiled as a Project Review White Paper (PWP) evaluated each project's strategic value in meeting the State Objectives and Resource Management Strategies, as well as the IRWM Plan's Water Management Strategies, and its Goals and Objectives. The PWP is a resource document developed for purposes of project selection and documenting detailed material to be used in populating the various IRWM Plan sections. The approach presented in the PWP will be to update and maintain a current project list as part of the IRWM Plan's implementation.

Geographic significance of project location is considered in project selection to ensure each Sub-Region is equally represented in the IRWM Plan. The map on the back page identifies the approximate location of the capital projects and programs (typically projects spread across large areas and are positioned at the approximate center of the benefit areas) included on the Project Short List.

NEXT STEPS

The concepts and projects presented in this brochure will be published in the 2013/14 IRWM Plan Update. The project list will be revisited upon DWR publishing the Prop 84 Round 3 IRWM Implementation Grant Funding Project Solicitation Package (expected in mid- to late-2014). At that time, the RWMG and Interested Stakeholders would conduct a solicitation, evaluate projects, and determine a competitive suite of projects suitable for that grant funding source, as needed. Project sponsors and stakeholders are also encouraged to seek other sources of funding. Thank you for helping the SLO County IRWM Region to implement projects and programs that continue to improve local water resources management.

Final IRWM Project Short List Project Locations



Thank you for your continued support and participation in the IRWM Plan development.

For additional information about the IRWM Plan Update and access to the electronic documents associated with this effort, visit:

http://www.slocountywater.org/

If you have any questions, please do not hesitate to call Carolyn Berg, *San Luis Obispo County Department of Public Works,* (805) 781-5536.

REGIONAL WATER MANAGEMENT GROUP

- San Luis Obispo County
- San Luis Obispo County Flood Control and Water Conservation District
- California Men's Colony
- Cambria Community Services District
- City of Arroyo Grande
- City of Grover Beach
- City of Morro Bay
- City of Paso Robles
- City of Pismo Beach
- City of San Luis Obispo
- Central Coast Salmon Enhancement
- Coastal San Luis Resource Conservation District
- Heritage Ranch CSD
- Land Conservancy
- Los Osos CSD
- Morro Bay National Estuary Program
- Nacimiento Regional Water Management Advisory Committee
- Nipomo CSD
- Oceano CSD
- Templeton CSD
- San Miguel CSD
- San Simeon CSD
- S&T Mutual Water Company
- Upper Salinas - Las Tablas Resource Conservation District

Prepared by GEI Consultants with support from Fugro Consultants, Dudek, Gutierrez Consultants, and Hollenbeck Consulting

D-3 List of Attendees and Public Meeting Comments

SAN LUIS OBISPO IRWM PLAN UPDATE

NORTH COAST
SUB-REGIONAL IRWM WORKSHOP

Please sign in here

✓ In email list ov
Added to list
7/23/13 CKB

JULY 23, 2013

Contact Person	Agency/Group	Phone Number	email
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~~Carolyn Berg~~	Mike Cornelius	GEI	

SAN LUIS OBISPO IRWM PLAN UPDATE

NORTH COUNTY
SUB-REGIONAL IRWM WORKSHOP

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Added to email contact list 7/24/13 CKB

JULY 24, 2013

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Bill Pelfrey	SELF	434-1556	

SAN LUIS OBISPO IRWM PLAN UPDATE

NORTH COUNTY
SUB-REGIONAL IRWM WORKSHOP

Please sign in here

JULY 24, 2013

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Mike Cornelius	GEI		
Paul Sorensen	Fugro		

SAN LUIS OBISPO IRWM PLAN UPDATE

~~NORTH~~ South COAST

SUB-REGIONAL IRWM WORKSHOP

Please sign in here

✓ = in email list or Added to list 7/23/13 CMB

JULY 23, 2013

Contact Person	Agency/Group	Phone Number	email
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Cherie Du	SLO County	(805)754-9492	✓ cdu@co.slo.ca.us
Lori Angello	OCSD	(805) 801-4284	✓ lja1103@charter.net
Jennifer Blackburn	OCSD	805 377-3585	✓ jenblackburn@gmail.com

SAN LUIS OBISPO IRWM PLAN UPDATE

SOUTH COUNTY
SUB-REGIONAL IRWM WORKSHOP

Please sign in here

JULY 23, 2013

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MARY LUCEY	OCSD, D.R, WRAC.	805 704-1812.	MARYLUCEY15@YAHOO.COM
Teresa McElish	City of AG	805-473-5422	tmcelish@arroyogrande.org
Laura Mordaunt	SLO	8055420556	laura@mordaunt.org
Elfrieda Blond	Self interest	805-773-6506	~~e~~
Shelly Higginbotham	MAYOR PISMO BEACH	805 235-6604	shigginbotham@pismobeach.org
Mike Cornelius	GEI		
Carolyn Berg	SLO County		

WATER RESOURCES ADVISORY COMMITTEE

2011 GUEST LIST

NAME	AFFILIATION (if any)	JAN	FEB	MAR	MAR*	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Adams, Lana	SLO Green Build	X							No Meeting	No Meeting				
Ausilio, Frank	Public													
Bailey, Shayna	Upper Salinas-Las Tablas RCD										X			
Barget, Joe	Vanderberg Village CSD													
Barnnett, Mark	Natural Resources Conservation Service													
Berman, Dan	Morro Bay National Estuary Program													
Bianchi, Mary	UC Cooperative Extension	X												
Bianchi, Shirley		X												
Blakely, David	Santa Margarita													
Bodrogi, Lisa	Paso Robles Wine Country Alliance				X	X					X			X
Breschini, Amy	UC Cooperative Extension													
Bunin, Jerry	Home Builders Association	X	X	X	X	X	X	X				X		
Carella, Lou	Carollo Engineers				X									
Chow, Lou	Sunpower	X												
Cleath, Timothy	Cleath-Harris Geologists	X												
Cornelius, Michael	GEI Consultants, Inc.					X								
Crable, Sarah	AECOM					X		X						
Edwards, Jeff	Private Planner	X	X	X	X	X		X			X	X	X	
Gonzalez, Kirk	AECOM												X	X
Gutierrez, Jose	West Yost Associates				X									
Harris, Spencer	Cleath-Harris Geologists					X								
Heimel, Daniel	Water Systems Consulting					X					X	X		
Hensley, Gordon	San Luis Obispo Coastkeeper							X						
Long, Chris	Camp San Luis Obispo													X
McDonald, Susan	Hearst Ranch	X	X					X						
Metz, Jennifer	City of San Luis Obispo													X
Mulholland, Christine **	Flood Control Zone 9 Advisory Committee				X			X				n/a	n/a	n/a
Naursen, Jim	NCSD													X
Nester, Greg **	Greg Nester Construction & Development	X	X	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
Nygaard, Aileen	City of Arroyo Grande													X
Ochylski, Marshall		X	X											
Petrick, Bill	Nipomo Resident			X	X		X				X		X	X
Reeves, Roy	Santa Margarita	X	X	X		X		X			X	X	X	
Reynolds, Josh	Water Systems Consulting						X							
Roques, Dominic	RWQCB													X
Sapp, Jordan	Sunpower	X												
Shields, Eileen	AECOM				X									
Smith, Nicole	CSLRCD													X
Snyder, John	Nipomo Resident		X	X	X		X	X			X		X	X
Sorensen, Paul	Fugro West Inc.	X	X	X		X		X						
Szytel, Jeffery	Water Systems Consulting							X				X		X
Tanaka, Steven	Wallace Group	X			X						X			
Taylor, George		X	X	X	X	X	X	X			X	X	X	X
Taylor, Gewynn		X	X	X	X	X	X	X			X	X	X	X
Tornatzky, Lynette		X		X		X	X	X			X		X	X
Wagner, Kari	Wallace Group						X							
Wald, Stephnie	Central Coast Salmon Enhancement	X									X			
Walters, Tim **	RRM Design Group	X	X	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
Waterman, Spencer	Water Systems Consulting												X	X
Zehnder, Tom	Wallace Group		X											

* Special Meeting

** See Member List

WATER RESOURCES ADVISORY COMMITTEE 2011

Organization	Representative		Jan	Feb	Mar	Mar***	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cambria CSD	~~Jim Adams~~	M			n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Bob Gresens **		n/a	n/a		X	X		X				X		
	~~Robert Reason~~	A			n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Jerry Gruber **		n/a	n/a											
	~~Bob Gresens~~	O	X		n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
Heritage Ranch CSD	John D'Ornellas	M	X				X	X					X	X	
	Debbie Fransen	A													
Los Osos CSD	~~Dan Gilmore~~	M	X	X	X	X	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Leonard Moothart **		n/a	n/a	n/a	n/a	X	X	X				X	X	X
	~~Maria Kelly~~	A					n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Dan Gilmore **		n/a	n/a	n/a	n/a	X					X		X	X
	~~Leonard Moothart~~	O			X		n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Maria Kelly							X							
Nipomo CSD	~~Ed Eby~~	M		X	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Michael Winn **		n/a	n/a	X	X	X	X	X			X	X	X	X
	~~Don Spagnolo~~	A			n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Ed Eby **		n/a	n/a	X		X	X	X			X	X	X	X
Oceano CSD	~~Barbara Mann~~	M			n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	~~Carole Henson~~		n/a	n/a	X	X	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Mary Lucey **		n/a	n/a	n/a	n/a	n/a	n/a	n/a						X
	~~Phil Davis~~	A			n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	~~Lori Angello~~		n/a	n/a				X				n/a	n/a	n/a	n/a
	Rick Searcy **		n/a	n/a	n/a	n/a	n/a	n/a	n/a			X			X
	~~Carole Henson~~	O		X			n/a	n/a	n/a			n/a	n/a	n/a	n/a
Templeton CSD	Jeff Hodge	M				X	X		X				X	X	X
	Judith Dieth	A													
San Simeon CSD	John Russell	M	X	X	X		X	X	X						
	Charles Grace	A													
San Miguel CSD	Mike Ellison	M													
	Dale Hamblin	A													
City of Arroyo Grande	~~Chuck Fellows~~	M		n/a	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Tim Brown **		n/a			X	X					X		X	
	Jim Guthrie	A													
	~~Tim Brown~~	O	X	n/a	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
City of Atascadero	Russ Thompson	M	X				X		X			X		X	X
	David Athey	A													
City of Grover Beach	~~Robert Mires~~	M		n/a	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Bill Nicolls **		n/a			X	X	X				X		X	
	~~Debbie Peterson~~	A		n/a	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Phyllis A. Molnar **		n/a	X					X			X			X
City of Morro Bay	~~Betty Winholtz~~	M					n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Noah Smulker **		n/a	n/a	n/a	n/a	X	X						X	
	Dylan Wade **	A				X	n/a	n/a	n/a			X	X	X	X
	~~Andrea Lueker~~		n/a	n/a	n/a	n/a						n/a	n/a	n/a	n/a
	~~Dylan Wade~~	O	n/a	n/a	n/a	n/a		X				n/a	n/a	n/a	n/a
	~~Noah Smulker~~				X	X	n/a	n/a	n/a			n/a	n/a	n/a	n/a
City of Paso Robles	Christopher Alakel	M													
	Keith Larson	A	X	X	X	X	X	X	X			X	X	X	X
City of Pismo Beach	~~Ted Ehring~~	M		n/a	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Ed Waage **		n/a	X	X	X	X	X	X			X	X		X
	~~Ed Waage~~	A	X	n/a	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Kris Vardas **		n/a												
	Dwayne Chisam	O	X	X	X	X	X	X	X			X			X
City of San Luis Obispo	John Ashbaugh	M	X		X	X	X	X				X	X	X	X
	~~Jan Marx~~	A			n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Dan Carpenter **		n/a	n/a											
	~~Gary Henderson~~	O	X	X	X	X	X	X	X			X	n/a	n/a	n/a
	Dan Carpenter			X	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	Carrie Mattingly								X			X		X	
	Wade Horton											X	X	X	X
District 1	Steve Sinton	M		X	X	X		X				X	X	X	X
District 2	Bill Garfinkel	M	X	X	X	X	X	X	X			X		X	X
District 3	Marilee Hyman	M	X	X	X	X	X	X	X			X	X	X	X
District 4	~~Michael Winn~~	M	X	X	n/a	n/a	n/a	n/a	n/a			n/a	n/a	n/a	n/a
	James Toomey **		n/a	n/a	X	X	X	X	X				X	X	X
District 5	Della Barrett	M	X		X	X	X		X			X	X	X	
California Men's Colony	~~Mike Vela~~	M											n/a	n/a	n/a
	Tisdel Thomas **		n/a	n/a	n/a	n/a	n/a	n/a	n/a			n/a	X		X
	~~Rudy Vargas~~	A											n/a	n/a	n/a
	Jason Meeks **		n/a	n/a	n/a	n/a	n/a	n/a	n/a			n/a			
	~~Jason Meeks~~	O	X		X	X							n/a	n/a	n/a
	~~Tisdel Thomas~~					X			X			X	n/a	n/a	n/a
Camp SLO	John Reid	M	X	X	X	X		X	X			X	X	X	X
	Nicole Balliet	A													
Cuesta College	Edralin Maduli	M													
	Terry Reece	A													
Atascadero Mutual	John Neil	M				X							X		
	Jaime Hendrickson	A						X	X			X			
Golden State Water	Mark Zimmer	M	X	•	•	X		X	X			X	X	X	X
	Patrick Vowell	A	X	X	X		X	•				X	•	X	X
Agriculture At-Large	Ray Allen	M	X	X	X	X	X	X					X	X	X
	Mike Broadhurst	A		X	X		X	X	X			X	X	X	X
	Lowell Zelinski	M	X	X	X		X		X			X	X		X
	Steve Lohr	A		X			X		X			X		X	X
County Farm Bureau	Jackie Crabb	M	X	X	X	X	X	•	X			X	X	X	
	Joy Fitzhugh	A						•							X
Development At-Large	Greg Nester **	M	n/a	n/a		X	X	X	X				X	X	
	Tim Walters **	A	n/a	n/a	X	X	X					X	X	X	
Environmental At-Large	Sue Luft	M	X	X	X	X	X	X	X			X	X	X	X
	~~Sue Harvey~~	A			X								n/a	n/a	n/a
	Christine Mulholland **		n/a	n/a	n/a	n/a	n/a	n/a	n/a			n/a			•
	Eric Greening	M	X	X	X	X	X	X	X			X	X	X	X
	David Chipping	A	X	X	X			X	X			X	X	X	X
	Annie Gillespie	M	X	X	X		X	•	X			X	X	X	•
	Stephnie Wald **	A	n/a	X	•		X	X	X				X	X	X
Coastal San Luis RCD	Linda Chipping	M	X	X	X			X	X			X	X	X	X
	Kathie Matsuyama	A	X				X								
Upper Salinas RCD	Tom Mora	M		X	X										
	Bill Bianchi	A	X												
	Shayna Bailey	O										X			
Public Works	Paavo Ogren	Staff													X
	Dean Benedix		X		X	X	X	X	X						
	Courtney Howard			X	X	X	•	•	•			X	X	X	X
	Sylas Cranor		X	X	X	X	X	X	X			•	X	X	
	Carolyn Berg					X		X	X			X	X		X
	Mark Hutchinson							X							
	Angelina McKee											X			
	Richard Gonzalez											X			
	Jill Ogren													X	
Planning and Building	James Caruso	Staff	X	X			X						X		
	John McKenzie		X												
Public Health Services	Leslie Terry	Staff	X	X		X	X		X			X	X		
	Megan Lillich		X					X							
	Rich Lichtenfels		X				X	X	X						
Agricultural Commissioner	~~Michael Isensee~~	Staff	X			X	X								
	Lynda Auchinachie								X			X	X	X	X

M = Member; A = Alternate; NM = New Member; NA = New Alternate; O = Other Representitives (e.g Staff, Council, Board, etc.)
~~strikethough text~~ = indicates that this individual is no longer serving in this role; • = Notified of absence or conflict

* = To be confirmed at a future BOS meeting
** = Membership confirmed by the BOS after 01/01/2011
*** = Special Meeting

WATER RESOURCES ADVISORY COMMITTEE

2012 GUEST LIST

NAME	AFFILIATION (if any)	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG	SEP	OCT	NOV	DEC
Arnold, Debbie								X					
Bodrogi, Lisa	Paso Robles Wine Country Alliance	X	X					X					
Branin, Barry	Morro Bay Resident			X									
Cleath, Tim	CHG		X			X							
Clement, Meredith	Kennedy/Jenks									X			
Cooney, Mitch	Los Osos CSD			X	X								
Densmore, Jill	USGS										X	X	X
Edwards, Jeff	Los Osos Resident		X	X	X	X		X		X	X		X
Ela, Steve	Transition Towns of SLO		X	X									
Gristanti, Debby	LOCAC			X	X			X					
Gutierrez, Lidia	Gutierrez Consulting	X											
Harvey, Sue	NCW							X					
Hebert, Laura	Green Gardens		X										
Heimel, Daniel	WSC										X		
Hill, Bob	Land Conservancy of SLO										X		
Hollenbeck, John	Atascadero Resident							X			X		
Margetson, Richard	Cayucos Resident				X	X		X					
Marini, Sharon	Santa Margarita Resident										X		
McDonald, Susan	Hearst Ranch	X											
Milledge, Vicki	LOCAC Chairperson					X				X			
Owen, Linde	Los Osos							X					
Peirson, John	Marine Resource Specialists		X										
Petrick, Bill	Nipomo Resident	X									x		
Reeves, Roy	Santa Margarita	X	X	X	X	X	X			X	X	X	
Schultz, Lynn	Huasna Valley Association		X										
Sheilds, Eileen	AECOM							X					
Skinner, Ron	Huasna Valley Association		X										
Snyder, John	Nipomo Resident		X	X		X	X				X		X
Sorensen, Paul	Fugro										X	X	
Tacker, Julie	Los Osos Resident				X	X							
Tanaka, Steven	Wallace Group	X	X										
Taylor, George	Los Osos Resident	X	X	X	X	X	X	X			X	X	X
Taylor, Gewynn	Los Osos Resident	X	X	X	X	X	X	X		X	X	X	X
Tornatzky, Lynette	Los Osos Resident	X	X	X			X	X		X			
Waterman, Spencer	Water Systems Consulting	X	X	X	X	X	X	X		X		X	
Watson, Elaine	LOSG				X					X			
Williams, Pat	Solomon Hill					X	X	X					
Wolff, Jean-Pierre	Wolff Vineyards			•	X								
Wade, Dylan	WSC												X
Babcock, Jim	Arcadis, U.S., Inc.												X

No Meeting

* Special Meeting

** See Member List

• = Notified of absence or conflict

WATER RESOURCES ADVISORY COMMITTEE 2012

Organization	Representative		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cambria CSD	Bob Gresens	M		X			X	X			X	X		X
	Jerry Gruber	A												
Heritage Ranch CSD	John D'Ornellas	M		X								X		X
	Debbie Fransen	A												
Los Osos CSD	Leonard Moothart	M	X	X	X		X				X		X	
	Susan Morrow	A									X	X	X	
	David Vogel	O									X			
	Marshall Ochylski										X			
Nipomo CSD	Michael Winn	M	X	X	X	X	X	X	X		X	X	X	X
	Ed Eby	A	X	X	X	X	X	X	X					
	Michael LeBrun	O	X									X	X	
Oceano CSD	Mary Lucey	M	X	X	X	X	X	X	X				X	X
	Lori Angello	A					X	X	X		X		X	X
	Tom Geaslen	O	X	X										X
Templeton CSD	Jeff Hodge	M	X		X				X		X	X		X
	Judith Dieth	A												
San Simeon CSD	Charles Grace	M												
	Renee Lundy	A		X		X		X	X		X		X	X
San Miguel CSD	Rene Salas	M		X							X	X	X	X
	Richard Harrison	A												
City of Arroyo Grande	Tim Brown	M	X		X	X	X		X		X		X	
	Jim Guthrie	A												
	Teresa McClish	O	X	X									X	X
	Mike Linn								X					
	Aileen Nygaard								X		X			
City of Atascadero	Russ Thompson	M	X				X	X	X			•		X
	David Athey	A												
City of Grover Beach	Phyllis A. Molnar	M	X	X		X	X	X	X		X	X		
	Bill Nicolls	A											•	X
	Greg Ray	O							X					
City of Morro Bay	Noah Smukler	M			X			X				X		
	Dylan Wade	A (past)		X				X	X			X		
	Rob Livick	A										X	X	
City of Paso Robles	Christopher Alakel	M												
	Keith Larson	A	X	X	X	X	X	X	X		X	X	X	
City of Pismo Beach	Ed Waage	M	X	X	X	X	X	X	X		•		X	
	Kris Vardas	A									•	X		
	Dwayne Chisam	O	X	X		X	X		X					
City of San Luis Obispo	John Ashbaugh	M	X	X	X	X	X	X				X	X	X
	Andrew Carter	A												
	Wade Horton	O	X			X		X			X	X	X	
	Jennifer Metz						X							
	Ron Munds				X				X					X
District 1	Steve Sinton	M	X	X	X	X	X	X	•			X	X	X
District 2	Bill Garfinkel	M	X	X	X	X	X	X	X		X	X	X	X
District 3	Marilee Hyman	M	X	X	X	X	X	X	X		X	X	X	X
District 4	James Toomey	M	X	X	X	X	X	X	X		X	X	X	X
District 5	Della Barrett	M	X	X	X	X	X	X	X		X	X	X	X
California Men's Colony	Tisdel Thomas	M					X					X	X	X
	Jason Meeks	A				X	X		X					
	Pres Meyers	O				X								
	Larry Barkley					X	X						X	X
Camp SLO	John Reid	M	X	X	X	X	X	X	X		X	X	X	X
	Nicole Balliet	A												
Cuesta College	Edralin Maduli	M												
	Terry Reece	A												
Atascadero Mutual	John Neil	M		X										X
	Jaime Hendrickson	A			X	X	X					X	X	
Golden State Water	Mark Zimmer	M			X		X		•		X		X	?
	Patrick Vowell	A	X	X	X	•		X			X	X	X	•
	Ken Petersen	O				X								X
Agriculture At-Large	Ray Allen	M	X	X		X	X	X	X		X	X	X	X
	Patrick Williams	A												X
	Lowell Zelinski	M	X	X		X	X	X			X	X		
	Steve Lohr	A	X			X						X	X	X
	Mike Broadhurst	A (past)	X	X										
County Farm Bureau	Jackie Crabb	M	X	X	X	X	X	X				X	X	X
	Joy Fitzhugh	A												
Development At-Large	Greg Nester	M				X	X		X					
	Tim Walters	A	X	X	X	X	X	X			X	X	X	X
Environmental At-Large	Sue Luft	M	X	X	X	X	X	X	X		X	X	X	X
	Christine Mulholland	A	X	X	X	X	X	•	•		•	•		•
	Eric Greening	M	X	X	X	X	X	X	X		X	X	X	X
	David Chipping	A	X	X	X	X	X	X	X		X	X	X	X
	Annie Gillespie	M	X	X	•	X	•	X			X	X	X	X
	Stephnie Wald	A			X		X	X	X		X			
Coastal San Luis RCD	Linda Chipping	M	X	X	X	X	X	X	X		X	X	X	X
	Kathie Matsuyama	A												
Upper Salinas RCD	Michael Broadhurst	M					X	X	X			X	X	X
	Tom Mora	A				X	X				X	X	X	X
	Laura Edwards	O	X	X	X		X					X		
	Shayna Bailey			X	X									
Public Works	Paavo Ogren	Staff				X	X		X					X
	Dean Benedix													
	Courtney Howard		X	X	X	X	X	X	X		X	X	X	
	Carolyn Berg		X	X	X		X	X	X		X	X	X	
	Ray Dienzo					X	X				X			
	John Waddell										X			
	Wendy Hall						X							
	Angelina McKee						X							
Planning and Building	James Caruso	Staff	X	X	X	X		X	X					
	John McKenzie			X										
	John Nall			X			X							
	Susan Kefer											X	X	
Public Health Services	Leslie Terry	Staff	X		X	X		X			X			X
	Megan Lillich													
	Rich Lichtenfels													
Agricultural Commissioner	Lynda Auchinachie	Staff	X	X	X	X	X	X	X			X	X	X
General Services	Josh Heptig	Staff										X		

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*** = Special Meeting

WATER RESOURCES ADVISORY COMMITTEE

2013 GUEST LIST

NAME	AFFILIATION (if any)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Allen, Ray	SLOCCA					X				X			
Babcock, Jim	Arcadis, U.S., Inc.												
Barrett, Della	Public									X			
Barry, Jeff	GSI Water Solutions				X								
Battany, Mark	U.C. Copperative Extension		X										
Blackburn, Jennifer	Oceano Resident						X						X
Bollinger, Kurt	Ag At-Large Candidate						X				X		
Branin, Barry	Morro Bay Resident												
Christian, Steve	Christian Lazo Vineyards				X								
Cornelius, Mike	GEI Consultants								X				
Densmore, Jill	USGS		X		X	X	X		X				
Eby, Ed	Nipomo												X
Edwards, Jeff	Los Osos Resident	X	X		X					X			X
Engel, Claudia	Creston Resident			X									
Gristanti, Debby	LOCAC												
Gutierrez, Lidia	Gutierrez Consulting												
Harr, Kaitlin	Cal Poly IATPP								X				
Harvey, Sue	North County Watch				X	X							
Heimel, Daniel	WSC				X					X			
Hensley, Gordon	SLO Coastkeeper			X									
Hollenbeck, John	Atascadero Resident	X											
Jennings, D.	Templeton Resident		X										
Johnson, Erinn	Stantec AE												X
Kendall, George	Farm Bureau												X
Kraemer, Larry	Cannon											X	
Margetson, Richard	Cayucos Resident												
Marini, Sharon	Santa Margarita Resident												
Milledge, Vicki	LOCAC Chairperson												
Morrow, Rob	Cannon											X	
Nygaard, Aileen	City of Arroyo Grande											X	
Owen, Linde	Los Osos												
Patterson, Jim	Citizen					X							
Peirson, John	Marine Resource Specialists												
Petrick, Bill	Nipomo Resident												
Reeves, Roy	Santa Margarita	X	X	X	X	X			X	X	X	X	
Ritter, Don	Atascadero Resident					X							
Scott, Shawna	SWCA								X				
Sheilds, Eileen	AECOM												
Smith, Nicole	CSLRCD											X	X
Snyder, John	Nipomo Resident	X				X	X					X	X
Sorensen, Paul	Fugro	X	X	X					X				
Spencer, Bill	Windrose Farms						X						
Tacker, Julie	Los Osos Resident						X			X			
Tanaka, Steven	Wallace Group												
Thrupp, Gordon	Geosyntec								X				
Tindula, Gwen	U.C. Copperative Extension		X										
Tornatzky, Lynette	Los Osos Resident	X	X	X	X	X	X		X	X	X	X	X
Treder, Sophie	Treder Land Law					X							
Wade, Dylan	Water Systems Consulting	X	X										
Waterman, Spencer	Water Systems Consulting			X		X	X		X		X	X	X
Watson, Elaine	LOSG												
Watson, Jeannette						X							
Williams, Pat	Roiter Berry Farms	X	X				X		X	X			
Wilmore, Patricia	Paso Robles Wine Country Alliance		X	X	X	X	X						X
Winn, Mike	Nipomo Resident	X		X	•				X		X		
Wolff, Jean-Pierre	Wolff Vineyards												X

* Special Meeting

** See Member List

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WATER RESOURCES ADVISORY COMMITTEE 2013

Organization	Representative		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cambria CSD	Bob Gresens	M		X	X				No Meeting			X	X	X
	Jerry Gruber	A		X	X									
	Jim Bahringer	O		X										
	Amanda Rice			X	X									
Heritage Ranch CSD	John D'Ornellas	M			X		X							X
	Debbie Fransen	A												
Los Osos CSD	Leonard Moothart	M												
	David Vogel	M						X						
	Margaret Falkner	A					X	X		X	X	X	X	X
	David Vogel	O		X										
Nipomo CSD	Larry Vierheilig	M		X	X	•	X	•		X	X	X	X	
	Michael LeBrun	A			X	X	X	X		X	X		X	X
	Jim Harrison	O	X		X									X
Oceano CSD	Mary Lucey	M		X	X	X	X	X		X	X		X	X
	Lori Angello	A			X									
	Tom Geaslen	O	X	X		X								
	Lonnie Curtis												X	X
Templeton CSD	Tina Mayer	M		X	X	X	X						X	X
	Judith Dieth	A												
San Simeon CSD	Charles Grace	M												
	Renee Lundy	A			X						X		X	
San Miguel CSD	Anthony Kalvans	M												
	David Bentz	A												
	Rene Salas	M	X		X	X								
	Richard Harrison	A								`				
City of Arroyo Grande	Tim Brown	M		X	X		X			X	X		X	X
	Jim Guthrie	A												
	Teresa McClish	O		X	X									
	Mike Linn													
	Aileen Nygaard													
City of Atascadero	Russ Thompson	M	X					X		X		X	X	X
	David Athey	A												
City of Grover Beach	Phyllis A. Molnar	M	•						No Meeting					
	Bill Nicolls	M												
	Bill Nicolls	A	•											
	Karen Bright	A		X						`				
	Greg Ray	A								X				
City of Morro Bay	Noah Smukler	M						X						
	Rob Livick	A		•			X							
City of Paso Robles	Christopher Alakel	M					X							
	Keith Larson	A			X	X		X			X	X	X	X
City of Pismo Beach	Erik Howell	M	X	X										
	Kris Vardas	A												
	Ben Fine	O	X	X			X				X	X		
City of San Luis Obispo	John Ashbaugh	M		X	X	X	X	X	No Meeting	X	X	X	X	X
	Carlyn Christianson	A											X	
	Andrew Carter	A												
	Wade Horton	O	X	X	X		X				X	X	X	X
	Ron Munds							X						
District 1	Steve Sinton	M	X		X	X	X	X			X		X	X
District 2	Bill Garfinkel	M		X	X	X	X	X		X	X		X	X
District 3	David Jewell	M		X	X	X				X	X		X	X
District 4	James Toomey	M	X		X	X	X	X		X	X	X	X	X
District 5	Della Barrett	M	X											
District 5	John R. Hollenbeck	M		X	X	X	X	X		X	X	X	X	X
California Men's Colony	Tisdel Thomas	M							No Meeting				X	X
	Larry Barkley	A				X						X		
	Pres Meyers	O												
	Larry Barkley			X										
Camp SLO	John Reid	M	X	X	X	X	X	X		X	X		X	X
	James Tulloch	A												
Cuesta College	Vacant	M												
	Terry Reece	A												
Atascadero Mutual	John Neil	M												
	Jaime Hendrickson	A	X		X	X	X	X						
Golden State Water	Mark Zimmer	M	X	X	X	•				•	X			
	Patrick Vowell	A	X	•		•	X			•	X	X	•	X
	Ken Petersen	O	X			X		X		X	X	X	X	X
Agriculture At-Large	Ray Allen	M	X		X				No Meeting					
	Kurt Bollinger	M											X	
	Patrick Williams	A	X	X				X		X	•			
	Lowell Zelinski	M	X	X	X		X	X		X	X			
	Steve Lohr	A		X	X	X	X			X	X		X	X
County Farm Bureau	Jackie Crabb	M	X	X	X	X	X	X		X	X	X		
	Joy Fitzhugh	A											X	X
Development At-Large	Greg Nester	M												
	Tim Walters	A	X	X		X		X		X	X	X		X
Environmental At-Large	Sue Luft	M	X	X	X	X	X	X		X	X	X	X	X
	Christine Mulholland	A	X	X	X	X	X			X		X		X
	Eric Greening	M	X	X	X	X	X	X		X	X	X	X	X
	David Chipping	A	X				X			X	X	X	X	X
	Annie Gillespie	M		X	X	X	X	X		X	X			X
	Stephnie Wald	A	X	X		X				X	X			X
Coastal San Luis RCD	Linda Chipping	M	X	X	X		X			X	X	X	X	X
	Kathie Matsuyama	A				X	X	X						
Upper Salinas RCD	Michael Broadhurst	M	X	•	X	X	X	X		X	X	X	X	X
	Tom Mora	A		X		X		X			X	X	X	
	Laura Edwards	O	X											X

Public Works	Paavo Ogren	Staff							No Meeting		X			
	Dean Benedix													
	Cherie Du									X	X			
	Courtney Howard		X	X	X	X	X	X		X		X	X	X
	Carolyn Berg		X		X	•	X	X		X	X	X	X	X
	Jill Ogren						X							
	Evan Perez			X										
Planning and Building	James Caruso	Staff	X	X			X						X	
	Mike Wulkan			X										
	Karen Nall			X										
Public Health Services	Leslie Terry	Staff	X											
	Megan Lillich													
	Rich Lichtenfels											X		
Agricultural Commissioner	Lynda Auchinachie	Staff		X						X		X	X	X

M = Member; A = Alternate; NM = New Member; NA = New Alternate; O = Other Representitives (e.g Staff, Council, Board, etc.)
~~strikethough text~~ = indicates that this individual is no longer serving in this role; • = Notified of absence or conflict

* = To be confirmed at a future BOS meeting
** = Membership confirmed by the BOS after 8/27/2013.

WATER RESOURCES ADVISORY COMMITTEE

2014 GUEST LIST

NAME	**AFFILIATION** (if any)	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Battany, Mark	UCCE				X			No Meeting	No Meeting				
Bodrogi, Lisa	Cuvee Consulting				X								
Church, David	LAFCO		X		X								
Edwards, Jeff	Los Osos Resident	X	X		X								
Engel, Claudia	Blue Ribbon	X	X										
Gilmore, Dan	San Miguel		X										
Grewal, Greg	Creston Rancher		X	X	X								
Halley, Christine	TJ Cross Engr / Paso	X											
Hartzell, Robert	US-LT RCD	X											
Harvey, Sue	NCW		X										
Hutchinson, Mark	County of SLO					X							
Johnson, Erinn	Stantec		X										
Keeling, Matt	Central Coast Water Board	X											
Kendall, George	Farm Bureau	X											
Moothart, Leonard**	Los Osos CSD			X									
Nygaard, Aileen	City of Arroyo Grande	X											
Pedrotti, Brian	SLO CO Planning		X										
Petrick, Bill	Nipomo Resident				X								
Reeves, Roy	Santa Margarita Resident		X		X								
Roques, Dominic	Central Coast Water Board	X											
Rosales, Charlene	SLO Chamber of Commerce	X											
Smith, Nicole	CSLRCD	X											
Snyder, John	Nipomo Resident	X	X		X								
St. Clair, Pamela	TJ Cross Engr / Paso	X											
Stoehr, Chad	City of SLO		X		X								
Tornatzky, Lynette	Los Osos Resident	X			X								
Waterman, Spencer	Water Systems Consulting	X	X		X								
Webb, Jim	Cambria					X							
Webb, Mary	Cambria					X							
Wilmore, Patricia	Paso Robles Wine Country Alliance	X	X		X								
Wolff, Jean-Pierre	Wolff Vineyards	X											

* Special Meeting

** See Member List

• = Notified of absence or conflict

WATER RESOURCES ADVISORY COMMITTEE 2014

Organization	Representative		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
DISTRICT														
District 1	Steve Sinton	M	X	X	X	X								
District 2	Bill Garfinkel	M		X		X	X							
District 3	David Jewell	M			X									
District 4	James Toomey	M	X	X	X	X	X							
District 5	John R. Hollenbeck	M	X	X	X	X								
AT-LARGE							X							
Agriculture At-Large	Kurt Bollinger	M				X								
	Patrick Williams	A				X	X							
	Lowell Zelinski	M	X	X	X									
	Steve Lohr	A	X		X	X								
Development At-Large	Greg Nester	M												
	Tim Walters	A	X	X		X	X							
Environmental At-Large	Sue Luft	M	X	X	X	X								
	Christine Mulholland	A	X		X	X	X							
	Eric Greening	M	X	X	X	X	X							
	David Chipping	A	X	X	X	X	X							
	Annie Gillespie	M	X	•	X		X							
	Stephanie Wald	A		X		X								
RCDs														
Coastal San Luis RCD	Linda Chipping	M	X	X	X	X	X							
	Kathie Matsuyama	A												
	Nicole Smith	O												
Upper Salinas RCD	Michael Broadhurst	M		X	X	X	X							
	Tom Mora	A	X	X		X								
	Laura Edwards	O												
OTHERS														
Atascadero Mutual	John Neil	M	X		X	X								
	Jaime Hendrickson	A				X								
California Men's Colony	Tisdel Thomas	M		X										
	Larry Barkley	A												
	Pres Meyers	O												
Camp SLO	John Reid	M	X	X	X	X	X							
	Brian Wintzer	A	~~											
	James Tulloch	A		~~	~~	~~	~~	~~			~~	~~	~~	~~
County Farm Bureau	George Kendall	M	~~	X	X	X	X							
	Jackie Crabb	M		~~	~~	~~	~~	~~			~~	~~	~~	~~
	Joy Fitzhugh	A				X								
Cuesta College	Edralin Maduli	M												
	Terry Reece	A												
Golden State Water	Mark Zimmer	M												
	Patrick Vowell	A	X	X	X	X								
	Ken Petersen	O		X										
CITIES														
City of Arroyo Grande	Tim Brown	M	X				X							
	Jim Guthrie	A												
	Teresa McClish	O												
	Mike Linn													
	Aileen Nygaard			X	X		X							
City of Atascadero	Russ Thompson	M	X	X		X	X							
	David Athey	A												
City of Grover Beach	Bill Nicolls	M												
	Greg Ray	A												
City of Morro Bay	Noah Smukler	M												
	Rob Livick	A			X									
City of Paso Robles	Christopher Alakel	M												
	Keith Larson	A	X	X	X	X	X							
City of Pismo Beach	Erik Howell	M				X								
	Kris Vardas	A												
	Ben Fine	O												
City of San Luis Obispo	John Ashbaugh	M	X	X	X	X	X							
	Kathy Smith	A	~~	~~										
	Carlyn Christianson	A			~~	~~	~~	~~			~~	~~	~~	~~
	Wade Horton	O		X		X	X							
	Ron Munds				X									
CSDs														
Cambria CSD	Bob Gresens	M	X		X		X							
	Jerry Gruber	A												
	Jim Bahringer	O												
	Amanda Rice			X	X	X	X							
Heritage Ranch CSD	John D'Ornellas	M		X	X	X								
	Debbie Fransen	A				X								
Los Osos CSD	Leonard Moothart	M												
	David Vogel	M				~~	~~	~~			~~	~~	~~	~~
	Margaret Falkner	A	X	X	X	X	X							
Nipomo CSD	Craig Armstrong	M	~~	X	X		X							
	Larry Vierheilig	M	X	~~	~~	~~	~~	~~			~~	~~	~~	~~
	Michael LeBrun	A	X	X	X	X								
	Jim Harrison	O	X											
Oceano CSD	Mary Lucey	M	X	X	X									
	Lori Angello	A		X	X	X	X							
	Lonnie Curtis	O	X	X										
San Miguel CSD	Anthony Kalvans	M			X									
	Dan Gilmore		~~	~~	X	X	X							
	David Bentz	A			~~	~~	~~	~~			~~	~~	~~	~~
San Simeon CSD	Charles Grace	M												
	Renee Lundy	A												
Templeton CSD	Tina Mayer	M	X		X	X								
	Judith Dieth	A												
STAFF														
Agricultural Commissioner	Lynda Auchinachie	Staff	X	X	X	X	X							
Planning and Building	James Caruso	Staff	X											
	Mike Wulkan													
	Karen Nall													
Public Health Services	Leslie Terry	Staff		X	X		X							
	Megan Lillich													
	Rich Lichtenfels													
Public Works	Paavo Ogren	Staff	X	X										
	Sylas Cranor					X								
	Jill Ogren					X								
	John Diodati				X									
	Courtney Howard		X	X	X	X								
	Carolyn Berg		X		X	X								
	Jason Rath				X									

No Meeting

No Meeting

M = Member; A = Alternate; NM = New Member; NA = New Alternate; O = Other Representitives (e.g Staff, Council, Board, etc.)
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** = Membership confirmed by the BOS after 4/1/2014.

D-4 Sub-Region Workshop List of Issues and Concerns

Sub-Regional Priorities Workshop

Sub-region: North Coast
Location: Morro Bay Vets Hall
Date: 23-Jul-13
Time: 9:00 AM - 11:00 AM
No. of Surveys: 14

GOALS AND PRIORITIES		POINTS
Numbering	Water Supply	Points
1)	Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	49
2)	Conduct sub-region study on maximum use of recycled water.	44
3)	Study the impacts of climate change on coastal community water supplies.	34
4)	Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	47
5)	Implement water conservation programs and measures.	55
Numbering	Ecosystem and Watershed Priorities	Points
1)	Conduct a study on cost-effective methods of improving wastewater discharge quality.	38
2)	Understand the hydrology and hydraulics of the watersheds.	35
3)	Identify priorities for water supply enhancements.	46
4)	Identify priorities for watershed conservation projects that maintain or improve the heath of the watershed's ecosystem.	47
5)	Develop an understanding of the watershed's ecosystem balance.	40
6)	Preserve, enhance, restore and conserve the watershed ecosystem balance.	40
Numbering	Groundwater Monitoring and Management Goal	Points
1)	Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	42
2)	Create a state approved groundwater monitoring program at community or subregion level.	41
3)	Determine the safe yield of coastal aquifers.	47
Numbering	Flood Management Goal	Points
1)	Identify, protect, and enhance aquifer recharge areas.	47
2)	Distinguish the root cause of flooding problems.	37
3)	Restore floodplains, streams and rivers.	43
4)	Promote low impact development projects.	49
5)	Develop financial programs for drainage and flood management projects.	29
Numbering	Water Resources Management and Communications Goal	Points
1)	Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	40
2)	Develop a SLO IRWMP Project for Round 3.	37
3)	Initiate region wide discussions on conservation and reuse options.	47

Sub-Regional Priorities Workshop

Region: North County
Location: Paso Robles Council Chambers
Date: 24-Jul-13
Time: 9:00 AM - 11:00 AM
No. of Surveys: 18

GOALS AND PRIORITIES		POINTS
Numbering	Water Supply	Points
1)	Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	61
2)	Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	60
3)	Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	59
4)	Pursue cost-effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	56
5)	Seek funding for supplemental water supply.	47
Numbering	Ecosystem and Watershed Priorities	Points
1)	Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	52
2)	Understand watershed functionality and identify specific priorities for ensuring watershed health	53
Numbering	Groundwater Monitoring and Management Goal	Points
1)	Improve groundwater monitoring programs with participation for urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	60
2)	Establish safe sustainable yields with an emphasis of improving the larger regional basin.	57
3)	Seek funding for supplemental water, conjunctive use and/or groundwater banking programs to provide greater operational flexibility.	57
Numbering	Flood Management Goal	Points
1)	Identify, protect, and enhance aquifer recharge areas.	60
Numbering	Water Resources Management and Communications Goal	Points
1)	Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	59
2)	Develop a SLO IRWMP Project for Round 3.	52
3)	Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	47

Sub-Regional Priorities Workshop

Region: South County
Location: Pismo Beach Council Chambers
Date: 23-Jul-13
Time: 1:00 PM - 3:00 PM
No. of Surveys: 19

GOALS AND PRIORITIES		POINTS
Numbering	**Water Supply**	Points
1)	Seek agricultural and urban supplemental water supplies	28
2)	Study the impacts of sea level rise on coastal community water supplies.	34
3)	Develop supplemental water supplies	58
4)	Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	48
5)	Investigate options for optimizing use of local surface and water storage	49
6)	Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	52
7)	Evaluate potential for enhanced rainfall	31
8)	Improved diversification of water supply resources for the South County agencies	55
9)	Implementation of coordinated regional conservation programs	53
Numbering	**Ecosystem and Watershed**	Points
1)	Finalize/Implement AG Creek Habitat Conservation Plan	52
2)	Develop an inventory of diversions from surface water bodies	49
3)	Install stream gauges on key regional creeks	51
Numbering	**Groundwater Monitoring and Management**	Points
1)	Develop groundwater facilities or projects that increase operational and management flexibility.	30
2)	Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	61
3)	Develop management tools (conceptual and groundwater flow models)	48
4)	Uniform groundwater monitoring program for the South County groundwater basins	46
5)	Uniform metering and reporting for all groundwater pumping in the South County	37
6)	Increased groundwater monitoring (focused on storage)	20
7)	Install additional dedicated monitoring wells including down hole transducers in high priority areas	35
8)	Investigate and quantify subsurface flows between the SMGB management areas	37

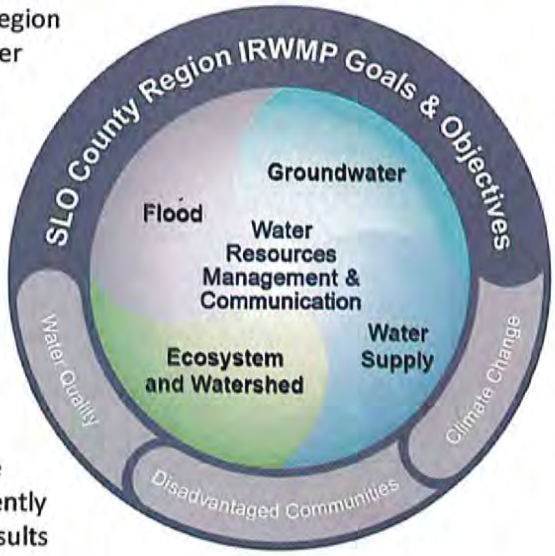
9)	Investigate and quantify available storage and reliable yield	49
10)	Policies to maintain health of the South County's groundwater basins	50
11)	Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	32
12)	Develop groundwater facilities or projects that increase operational and management flexibility.	23
Numbering	**Flood Management**	**Points**
1)	Develop projects to improve the levels of flood protection in urbanized areas.	43
2)	Increase stormwater retention and percolation	49
Numbering	**Water Resources Management and Communications**	**Points**
1)	Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	61
2)	Develop a SLO IRWMP Project for Round 3.	48
3)	Improve collaboration and data sharing between urban, agricultural, and rural pumpers.	59
4)	Maintain collaborative efforts between basin and watershed management groups	59

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 9:00 am -11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a low or high priority (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be achieved over a short term period, or would it require a long term period to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COAST
SUB-REGION PRIORITIES

Name: Bob Livick Agency/ Community: City of Morro Bay

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	☑	☐	☑	☐
2. Conduct sub-region study on maximum use of recycled water.	☑	☐	☑	☐
3. Study the impacts of climate change on coastal community water supplies.	☑	☐	☐	☑
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	☐	☑	☐	☑
5. Implement water conservation programs and measures.	☑	☐	☑	☐
6. Develop water budget watershed wide	☐	☑	☑	☐
7.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Bob Livick Agency/ Community: City of Morro Bay

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☑	☐	☑	☐
2. Understand the hydrology and hydraulics of the watersheds.	☐	☑	☐	☑
3. Identify priorities for water supply enhancements.	☑	☐	☐	☑
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☑	☐	☑	☐
5. Develop an understanding of the watershed's ecosystem balance.	☑	☐	☑	☐
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☑	☐	☐	☑
7. This is my priority	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

9

10

NORTH COAST
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☑	☐	☑	☐
2. Create a state approved groundwater monitoring program at community or subregion level.	☐	☑	☐	☑
3. Determine the safe yield of coastal aquifers.	☑	☐	☑	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Bob Livick Agency/ Community: CMB

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☑	☐	☐	☑
2. Distinguish the root cause of flooding problems.	☐	☑	☑	☐
3. Restore floodplains, streams and rivers.	☑	☐	☐	☑
4. Promote low impact development projects.	☑	☐	☑	☐
5. Develop financial programs for drainage and flood management projects.	☐	☑	☐	☑
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Bob Livick Agency/ Community: CMB

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☑	☑	☐
2. Develop a SLO IRWMP Project for Round 3.	☑	☐	☑	☐
3. Initiate region wide discussions on conservation and reuse options.	☑	☐	☑	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: John Maciejunes Agency/ Community: Los Osos

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

2 1 2 1

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term		
	High	Low	Near	Long	
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	☑	☐	☑	☐	4
2. Conduct sub-region study on maximum use of recycled water.	☐	☑ 1	☑ 2	☐	3
3. Study the impacts of climate change on coastal community water supplies.	☐	☑ 1	☐	☑ 1	2
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	☐	☑ 1	☐	☑ 1	2
5. Implement water conservation programs and measures.	☐	☑ 1	☑ 2	☐	3
6. Implement Desalination Plans ASAP	☑ 2	☐	☑ 2	☑	4
7.	☐	☐	☐	☐	

NORTH COAST
SUB-REGION PRIORITIES

Name: John Maciejunes Agency/Community: Los Osos

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

2 1 2 1

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term		
	High	Low	Near	Long	
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☐	☑	☑	☐	3
2. Understand the hydrology and hydraulics of the watersheds.	☐	☑	☑	☐	3
3. Identify priorities for water supply enhancements.	☑	☐	☑	☐	4
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☐	☑	☑	☐	3
5. Develop an understanding of the watershed's ecosystem balance.	☐	☑	☑	☐	3
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☐	☑	☑	☐	3
7. LOOK WESTWARD TO A NEW WATERSHED	☑	☐	☑	☑	4
8.	☐	☐	☐	☐	
9.	☐	☐	☐	☐	

NORTH COAST
SUB-REGION PRIORITIES

Name: John Maciejunes Agency/ Community: Los Osos

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

2 1 2 1

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term		
	High	Low	Near	Long	
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☐	☑	☑	☐	3
2. Create a state approved groundwater monitoring program at community or subregion level.	☐	☑	☑	☐	3
3. Determine the safe yield of coastal aquifers.	☐	☑	☑	☐	3
4. MONITOR FRACKING USE OF WATER	☑	☐	☑	☐	4
5.	☐	☐	☐	☐	
6.	☐	☐	☐	☐	
7.	☐	☐	☐	☐	
8.	☐	☐	☐	☐	
9.	☐	☐	☐	☐	

NORTH COAST
SUB-REGION PRIORITIES

Name: John Maciejunes Agency/ Community: Los Osos

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

2 1 2 1

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term		
	High	Low	Near	Long	
1. Identify, protect, and enhance aquifer recharge areas.	☑	☐	☑	☐	4
2. Distinguish the root cause of flooding problems.	☐	☑	☑	☐	3
3. Restore floodplains, streams and rivers.	☐	☑	☑	☐	3
4. Promote low impact development projects.	☐	☑	☑	☐	3
5. Develop financial programs for drainage and flood management projects.	☐	☑	☑	☐	3
6.	☐	☐	☐	☐	
7.	☐	☐	☐	☐	
8.	☐	☐	☐	☐	
9.	☐	☐	☐	☐	

NORTH COAST
SUB-REGION PRIORITIES

Name: John Maciejunes Agency/ Community: Los Osos

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

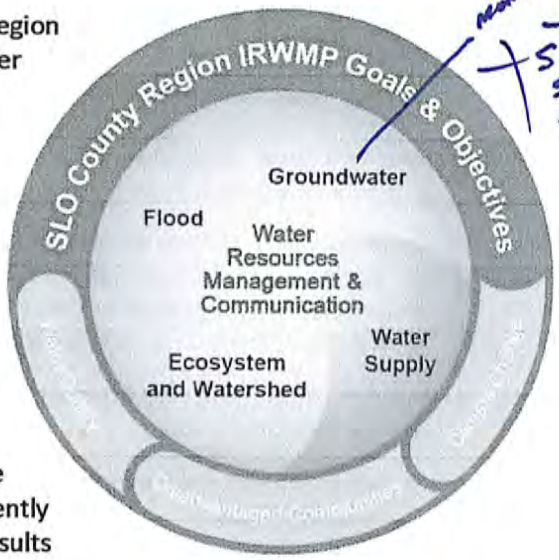
North Coast Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term		
	High	Low	Near	Long	
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☑	☑	☐	3
2. Develop a SLO IRWMP Project for Round 3.	☐	☑	☑	☐	3
3. Initiate region wide discussions on conservation and reuse options.	☐	☑	☑	☐	3
4.	☐	☐	☐	☐	
5.	☐	☐	☐	☐	
6.	☐	☐	☐	☐	
7.	☐	☐	☐	☐	

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 9:00 am -11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a low or high priority (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be achieved over a short term period, or would it require a long term period to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COAST
SUB-REGION PRIORITIES

Name: Richard Hawley Agency/ Community: Cambria

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	☑	☐	☑	☐
2. Conduct sub-region study on maximum use of recycled water.	☑	☐	☑	☐
3. Study the impacts of climate change on coastal community water supplies.	☑	☐	☑	☐
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	☑	☐	☑	☐
5. Implement water conservation programs and measures.	☑	☐	☑	☐
6. Review existing extraction permits for consistency	☑	☐	☑	☐
7. Review/plan water rationing strategies WATER BUDGETS BY WATERSHED	☑	☐	☑	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Richard Hawley Agency/ Community: Cambria

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☑	☐	☑	☐
2. Understand the hydrology and hydraulics of the watersheds.	☐	☐	☐	☐
3. Identify priorities for water supply enhancements.	☑	☐	☑	☐
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☑	☐	☑	☐
5. Develop an understanding of the watershed's ecosystem balance.	☐	☐	☐	☐
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☑	☐	☑	☐
7. This is my priority - Wastewater to potable reuse	☑	☐	☑	☐
8. Identify and re-mediate mercury contamination	☑	☐	☑	☐
9. Monitor for BMI's as a way to guage stream hea	☑	☐	☑	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Richard Hawley Agency/ Community: Cambria

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☑	☐	☑	☐
2. Create a state approved groundwater monitoring program at community or subregion level.	☑	☐	☑	☐
3. Determine the safe yield of coastal aquifers.	☑	☐	☑	☐
4. Review current extraction permits for consisten	☑	☐	☑	☐
5. Review and implement safeguards for streams	☑	☐	☑	☐
6. Develop incentives to reduce sub-dividing Ag la	☑	☐	☑	☐
7. Develop incentives to reduce sediment and inc	☑	☐	☑	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Richard Hawley Agency/ Community: Cambria

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☑	☐	☑	☐
2. Distinguish the root cause of flooding problems.	☐	☑	☐	☑
3. Restore floodplains, streams and rivers.	☑	☐	☑	☐
4. Promote low impact development projects.	☑	☐	☑	☐
5. Develop financial programs for drainage and flood management projects.	☐	☑	☐	☑
6. Develop a tax to purchase remaining floodplains fr	☐	☐	☐	☐
7. Develop strategies to eliminate trapezoidal channel	☐	☑	☐	☑
8. Develop strategies to eliminate channelizing water	☑	☐	☑	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Richard Hawley Agency/ Community: Cambria

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☐	☐	☐
2. Develop a SLO IRWMP Project for Round 3.	☑	☐	☑	☐
3. Initiate region wide discussions on conservation and reuse options.	☑	☐	☑	☐
4. Create a watershed conservation element for the Ge	☑	☐	☑	☐
5. Reorganize smaller watersheds into one planning ar	☑	☐	☐	☑
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

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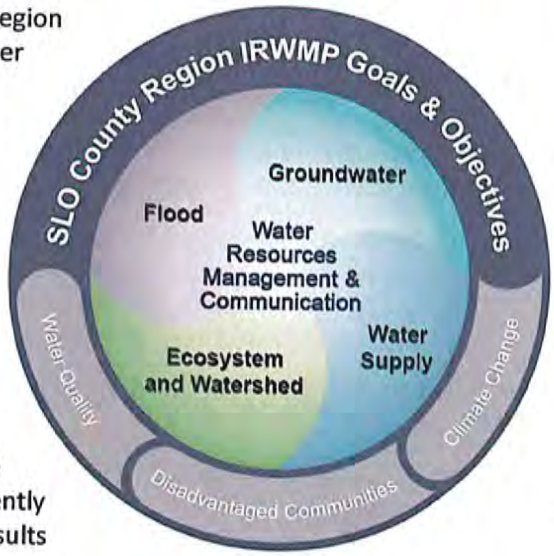

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The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COAST
SUB-REGION PRIORITIES

Name: Mike Broadhurst Agency/ Community: US-LT RCD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

DEPENDS ON COMMUNITIES

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	☐	☐	☒	☐
2. Conduct sub-region study on maximum use of recycled water.	☐	☒	☐	☒
3. Study the impacts of climate change on coastal community water supplies.	☒	☐	☐	☒
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	☐	☒	☒	☐
5. Implement water conservation programs and measures.	☒	☐	☐	☒
6. PROGRAMS TO SUPPLEMENT WATER SUPPLIES DURING DRY SEASON IN DRY YEARS.	☒	☐	☒	☐
7.	☐	☐	☐	☐

?

NORTH COAST
SUB-REGION PRIORITIES

Name: Mike Broadhurst Agency/ Community: US-LT RCD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality. CL RWQCB ??	☐	☐	☐	☐
2. Understand the hydrology and hydraulics of the watersheds.	☐	☒	☐	☒
3. Identify priorities for water supply enhancements.	☒	☐	☒	☐
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☒	☐	☒	☐
5. Develop an understanding of the watershed's ecosystem balance.	☒	☐	☒	☐
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☒	☐	☐	☒
7. This is my priority Urban Influence on	☒	☐	☐	☒
8. Creek watershed health.	☐	☐	☐	☐
9.	☐	☐	☐	☐

HOW DO WE ENGAGE LAMBSRIM/ SAN SIMEON ?

NORTH COAST
SUB-REGION PRIORITIES

Name: MIKE BROADHURST Agency/ Community: US-LT RCD

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

HOW WILL THIS INTERFACE W/ CCRWQCB

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☐	☐	☐	☐
2. Create a state approved groundwater monitoring program at community or subregion level. — ALREADY IN PLACE ?	☐	☐	☐	☐
3. Determine the safe yield of coastal aquifers. ??	☐	☐	☐	☐
4. > DEVELOP ~~GW~~ MUNICIPAL & RURAL	☐	☐	☐	☐
5. GW MGMT. PLAN CONSISTENT WITH	☐	☐	☐	☐
6. THE CCRWQCB STANDARDS	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Mike Broadhurst Agency/ Community: US-LT RCD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X			X
2. Distinguish the root cause of flooding problems.	X			X
3. Restore floodplains, streams and rivers.		X		X
4. Promote low impact development projects.	X			X
5. Develop financial programs for drainage and flood management projects.				
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Mike Broadhurst Agency/ Community: US-LT RCD

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Initiate region wide discussions on conservation and reuse options.		X		X
4.				
5.				
6.				
7.				

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.

A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 9:00 am -11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a low or high priority (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be achieved over a short term period, or would it require a long term period to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COAST
SUB-REGION PRIORITIES

Name: Scott E. Buffington Agency/ Community: C.M.C

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	☑	☐	☑	☐
2. Conduct sub-region study on maximum use of recycled water.	☑	☐	☑	☐
3. Study the impacts of climate change on coastal community water supplies.	☐	☑	☐	☑
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	☐	☑	☐	☑
5. Implement water conservation programs and measures.	☑	☐	☑	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Scott E. Buttgler Agency/ Community: C.M.C

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☑	☐	☑	☐
2. Understand the hydrology and hydraulics of the watersheds.	☐	☑	☐	☑
3. Identify priorities for water supply enhancements.	☑	☐	☑	☐
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☑	☐	☑	☐
5. Develop an understanding of the watershed's ecosystem balance.	☐	☑	☐	☑
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☑	☐	☑	☐
7. This is my priority	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Scott E. Burbake Agency/ Community: C.M.C.

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☑	☐	☑	☐
2. Create a state approved groundwater monitoring program at community or subregion level.	☑	☐	☑	☐
3. Determine the safe yield of coastal aquifers.	☑	☐	☑	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Scott E. Buttacker Agency/ Community: Cuyama

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☑	☐	☑	☐
2. Distinguish the root cause of flooding problems.	☐	☑	☐	☑
3. Restore floodplains, streams and rivers.	☑	☐	☑	☐
4. Promote low impact development projects.	☐	☑	☐	☑
5. Develop financial programs for drainage and flood management projects.	☑	☐	☑	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Scott E. Burfeind Agency/ Community: Cmre

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☑	☐	☑	☐
2. Develop a SLO IRWMP Project for Round 3.	☐	☐	☐	☐
3. Initiate region wide discussions on conservation and reuse options.	☑	☐	☑	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

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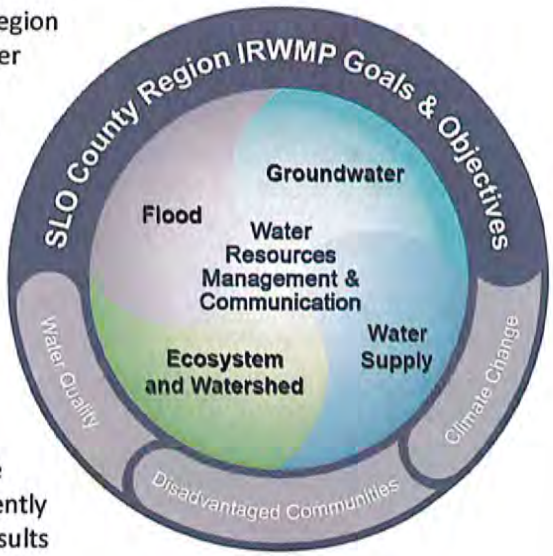

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NORTH COAST
SUB-REGION PRIORITIES

Name: Kelsen Day Agency/ Community: Cambria

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	X	X	X	
2. Conduct sub-region study on maximum use of recycled water.	X	X	X	
3. Study the impacts of climate change on coastal community water supplies.	X		X	X
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	X		X	
5. Implement water conservation programs and measures.	X		X	
6. Municipal Extraction Permits consistent with supply goals	X		X	
7. Rainwater, Reuse & Recycling	X		X	

NORTH COAST
SUB-REGION PRIORITIES

Name: Kelsey Dan Agency/ Community: Cambria

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	X		X	
2. Understand the hydrology and hydraulics of the watersheds.		X		X
3. Identify priorities for water supply enhancements.	X		X	
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	X		X	
5. Develop an understanding of the watershed's ecosystem balance.	X		X	
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	X		X	
7. This is my priority				
8. nitrate levels / salinity		X	X	
9. BMI / oxygen monitoring	X		X	

Endangered species restoration X X

& Habitat

Biodiversity & stream buffers?

NORTH COAST
SUB-REGION PRIORITIES

Name: Kelsey Day Agency/ Community: Cambria

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	X		X	
2. Create a state approved groundwater monitoring program at community or subregion level.	X		X	
3. Determine the safe yield of coastal aquifers. / Saltwater intrusion / subsidence	X		X	
4. pollution monitoring / ag & city	X		X	
5. groundwater recharge	X		X	
6. enhancement projects				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Kelsey Day Agency/ Community: Cambria

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X		X	
2. Distinguish the root cause of flooding problems.		X		X
3. Restore floodplains, streams and rivers.	X		X	
4. Promote low impact development projects. / permeable pavement	X		X	
5. Develop financial programs for drainage and flood management projects.	X		X	
6. Reduce Erosion Impacts / Shoreline decrease sedimentation / stream channelizing	X		X	
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Kelsey Day Agency/ Community: Cambria

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Initiate region wide discussions on conservation and reuse options.	X		X	
4. conservation Education in	X		X	
5. local schools				
6.				
7.				

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

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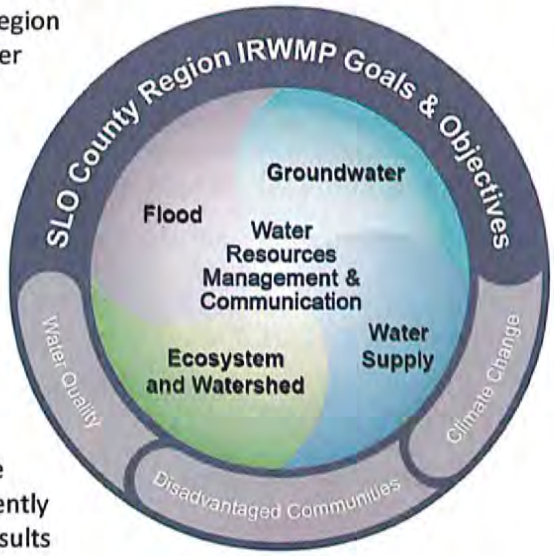

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NORTH COAST
SUB-REGION PRIORITIES

Name: Adrienne Harris Agency/ Community: MBNEP

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	☐	☒	☒	☐
2. Conduct sub-region study on maximum use of recycled water.	☒	☐	☐	☒
3. Study the impacts of climate change on coastal community water supplies.	☒	☐	☒	☐
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	☐	☒	☐	☒
5. Implement water conservation programs and measures.	☒	☐	☒	☐
6. Water budgets for watersheds	☒	☐	☐	☒
7. water for people + ecosystem	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Adrienne Harris Agency/ Community: MBNEP

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Ecosystem and Watershed Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☐	☒	☒	☐
2. Understand the hydrology and hydraulics of the watersheds.	☒	☐	☐	☒
3. Identify priorities for water supply enhancements.	☐	☒	☐	☒
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☒	☐	☒	☐
5. Develop an understanding of the watershed's ecosystem ~~balance,~~ health	☒	☐	☐	☒
6. Preserve, enhance, restore and conserve the watershed ecosystem ~~balance.~~	☒	☐	☐	☒
7. ~~This is my priority~~ biodiversity preservation	☒	☐	☐	☒
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☒	☐	☐	☒
2. Create a state approved groundwater monitoring program at community or subregion level.	☒	☐	☒	☐
3. Determine the safe yield of coastal aquifers. in face of climate change	☒	☐	☒	☐
4. Enhance groundwater recharge	☒	☐	☐	☒
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Adrienne Hans Agency/ Community: MBNEP

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☐	☐	☐	☐
2. Distinguish the root cause of flooding problems.	☐	☐	☐	☐
3. Restore floodplains, streams and rivers.	☒	☐	☒	☐
4. Promote low impact development projects.	☒	☐	☒	☐
5. Develop financial programs for drainage and flood management projects.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☐	☐	☐
2. Develop a SLO IRWMP Project for Round 3.	☐	☐	☐	☐
3. Initiate region wide discussions on conservation and reuse options.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

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NORTH COAST
SUB-REGION PRIORITIES

Name: Larry Barkley Agency/ Community: CMC

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	X		X Near	
2. Conduct sub-region study on maximum use of recycled water.	X		X near	
3. Study the impacts of climate change on coastal community water supplies.		X	Long Term	X
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	X		X near	
5. Implement water conservation programs and measures.	X		X near	
6.				
7.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Larry Barkley Agency/ Community: CMC

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.		X	X Long Term	
2. Understand the hydrology and hydraulics of the watersheds.	~~X~~	X		X Long Term
3. Identify priorities for water supply enhancements.	X		X Near	
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	X			X Long Term
5. Develop an understanding of the watershed's ecosystem balance.		X		X Long Term
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	X		X Long Term	
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
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4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.				
2. Create a state approved groundwater monitoring program at community or subregion level.				
3. Determine the safe yield of coastal aquifers.				
4.				
5.				
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Larry Barkley Agency/ Community: CMC

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Identify, protect, and enhance aquifer recharge areas.	X		X Near	
2. Distinguish the root cause of flooding problems.	X		X Near	
3. Restore floodplains, streams and rivers.	X		X Near	
4. Promote low impact development projects.	X		X Near	
5. Develop financial programs for drainage and flood management projects.	X		X Near	
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

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North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
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2. Develop a SLO IRWMP Project for Round 3.				
3. Initiate region wide discussions on conservation and reuse options.				
4.				
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NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

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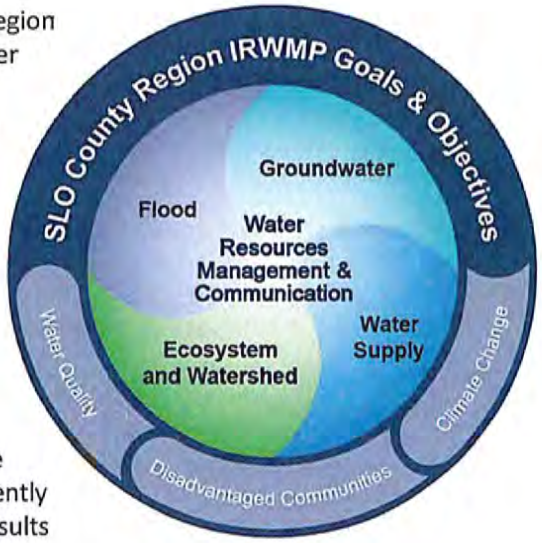

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NORTH COAST
SUB-REGION PRIORITIES

Name: Rick Sauerwein Agency/ Community: Morro Bay / AG

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	X		X	
2. Conduct sub-region study on maximum use of recycled water.	X		X	
3. Study the impacts of climate change on coastal community water supplies.		X		X
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	X		X	
5. Implement water conservation programs and measures.	X		X	
6. Implement Surface Runoff Catchment for Ag Irrig & GW recharge	X		X	
7.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Rick Sauerwein Agency/ Community: Morro Bay / AG

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	X		X	
2. Understand the hydrology and hydraulics of the watersheds.	X			X
3. Identify priorities for water supply enhancements.	X		X	
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	X		X	
5. Develop an understanding of the watershed's ecosystem balance.	X		X	
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	X			X
7. Santa Rosa Chorro Mercury Issues.		X		X
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Rick Sauerwein Agency/ Community: Morro Bay / AG

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	X		X	
2. Create a state approved groundwater monitoring program at community or subregion level.	X		X	
3. Determine the safe yield of coastal aquifers.	X		X	
4. Groundwater Recharge Projects	X		X	
5.				
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Rick Sauerwein Agency/ Community: Morro Bay / AG

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Identify, protect, and enhance aquifer recharge areas.	X		X	
2. Distinguish the root cause of flooding problems.		X		X
3. Restore floodplains, streams and rivers.		X		X
4. Promote low impact development projects.	X			X
5. Develop financial programs for drainage and flood management projects.	X		X	
6. Implement Recharge Projects	X		X	
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Rick Sauerwein Agency/ Community: Morro Bay / AG

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

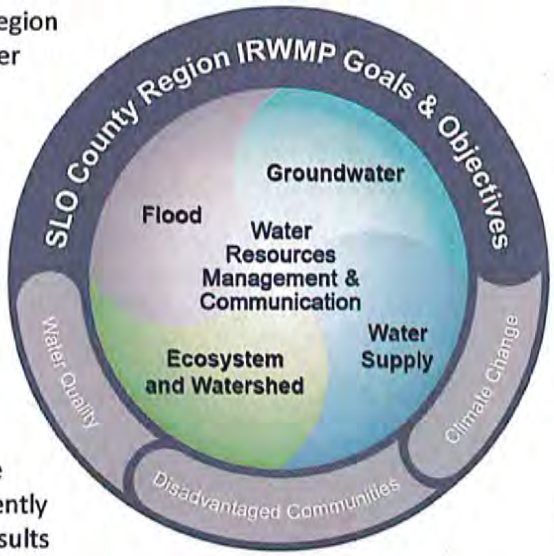
North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.		X		X
2. Develop a SLO IRWMP Project for Round 3.		X		X
3. Initiate region wide discussions on conservation and reuse options.	X		X	
4.				
5.				
6.				
7.				

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 9:00 am -11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a low or high priority (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be achieved over a short term period, or would it require a long term period to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COAST
SUB-REGION PRIORITIES

Name: WILLIAM GARFINKEL

Agency/ Community: LOS OSOS S+T MUTUAL WATER CO

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	X		X	
2. Conduct sub-region study on maximum use of recycled water.	X			X
3. Study the impacts of climate change on coastal community water supplies.		X		X
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	X	X		X
5. Implement water conservation programs and measures.	X		X	
6. MITIGATE SEAWATER INTRUSION	X		X	
7.				

NORTH COAST
SUB-REGION PRIORITIES

Name: WILLIAM GARFINKEL Agency/ Community: S&T MUTUAL WATER CO.

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Ecosystem and Watershed Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☐	☒	☐	☒
2. Understand the hydrology and hydraulics of the watersheds.	☒	☐	☒	☐
3. Identify priorities for water supply enhancements.	☒	☐	☐	☒
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☒	☐	☐	☒
5. Develop an understanding of the watershed's ecosystem balance.	☐	☒	☐	☒
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☐	☒	☐	☒
7. This is my priority	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: WILLIAM GARFINKEL Agency/ Community: SOT MUTUAL WATER CO

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	X		X	
2. Create a state approved groundwater monitoring program at community or subregion level.	X		X	X
3. Determine the safe yield of coastal aquifers.	X		X	
4.				
5.				
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: WILLIAM GARFINKEL Agency/ Community: SBT MUTUAL WATER CO

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X			X
2. Distinguish the root cause of flooding problems.	X		X	
3. Restore floodplains, streams and rivers.	X			X
4. Promote low impact development projects.		X		X
5. Develop financial programs for drainage and flood management projects.		X		X
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: WILLIAM GARFINKEL Agency/ Community: SOT MUTUAL WATER CO

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Initiate region wide discussions on conservation and reuse options.	X		X	
4. COMMUNITY OUTREACH	X		X	
5. ENFORCEMENT	X			X
6.				
7.				

NORTH COAST

SUB-REGION PRIORITIES

Name: Betty Winhoffer Agency/Community: Morro Bay

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements. no conserve
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents. already have
4. Support sustainable water quality and supply programs for agriculture. differentiate between food non-food ~~crops~~ crops
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards. needs to be ~~more~~ higher than existing standards
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs. yes
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinated water. no desal too costly
10. Support watershed enhancement projects and programs to increase available water supplies to the Region. (?)

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.				
2. Conduct sub-region study on maximum use of recycled water.				
3. Study the impacts of climate change on coastal community water supplies.				
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater. within a basin not between	X		X	
5. Implement water conservation programs and measures. Morro Bay has one	X		X	
6. Differentiate food vs. non-food as priority	X		X ↔ X discussion needs to begin now	
7. water quality critical because it affects all our waters	X		X	

NORTH COAST
SUB-REGION PRIORITIES

Name: Betty Winholtz Agency/Community: Morro Bay

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

define i.e. water related only or land based as well.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Ecosystem and Watershed Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality. should already exist or you've been negligent in Los Osos.				
2. Understand the hydrology and hydraulics of the watersheds.	X		X	
3. Identify priorities for water supply enhancements. ?				
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.				middle
5. Develop an understanding of the watershed's ecosystem balance.	X			X
6. Preserve, enhance, restore and conserve the watershed ecosystem balance. nebulous				
7. fish passage - mandatory, should be	X		X and	X
8.				
9.				

The MBNEP has already done this for the Chorro Valley

3 I don't know if they have done this for Los Osos Creek.

NORTH COAST
SUB-REGION PRIORITIES

Name: Betty Winholtz Agency/Community: Mono Bay

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/organizations for the purpose of implementing water supply and conservation plans, programs, and projects. good luck
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.				
2. Create a state approved groundwater monitoring program at community or subregion level. is there a deadline? or financial reason?				
3. Determine the safe yield of coastal aquifers.	X		X	
4. seawater intrusion: critical to address	X		X	
5. i.e. LO and MB WWTP's - should be mandatory	X		X	
6.				
7.				
8.				
9.				

individual wells as well as community wells? So is this another way of saying all ground water? (water supply)

NORTH COAST
SUB-REGION PRIORITIES

Name Betty Winholtz Agency / Community Morro Bay

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
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7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X		X	
2. Distinguish the root cause of flooding problems.				
3. Restore floodplains, streams and rivers.				
4. Promote low impact development projects.	X		X	← this is where the individual can have impact for change
5. Develop financial programs for drainage and flood management projects.				
#1 from objective above	X		X	
7.				
8.				
9.				

* Flooding is not much of an issue for Morro Bay, as is drought and danger of hillside slides. Hillside slides is consistent in all 5 north coast communities (Los Osos, Morro Bay, Cayucos, Cambria, ~~Risk~~ except Since. I know flooding is an issue in Los Osos/Baywood.

NORTH COAST
SUB-REGION PRIORITIES

Name: Betty Winholtz Agency/Community: Morro Bay

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

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7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

#1 below is your implementation for #8. The emphasis should be on water quality because that is where individuals can have an effect, i.e. on their lawns.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3. I assume you will do this regardless.		X		X
3. Initiate region wide discussions on conservation and reuse options.				
4. #5 above [Wish list, not real.]				
5. # 6 above (This is where Morro Bay gets into trouble because it doesn't collaborate.)	X		X	
6.				
7.				

6 ★ The 5 communities along the North Coast have 5 distinct watersheds. For the most part, they don't talk to each other. I don't see this as workable. (Los Osos, Morro Bay, Cayucos, Cambria, San Simeon)

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

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How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a low or high priority (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be achieved over a short term period, or would it require a long term period to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

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NORTH COAST
SUB-REGION PRIORITIES

Name: MARGARET FALKNER Agency/ Community: LOCSD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	NEAR ~~High~~	LONG ~~Low~~
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	X		X	
2. Conduct sub-region study on maximum use of recycled water.	X			X
3. Study the impacts of climate change on coastal community water supplies.		X		X
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	X		X	
5. Implement water conservation programs and measures.	X		X	X
6. ONGOING SEA WATER INTRUSION MITIGATION	X		X	
7.				

NORTH COAST
SUB-REGION PRIORITIES

Name: MARGARET Agency/ Community: LOCSD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Ecosystem and Watershed Priorities**	**High or Low Priority**		**Near or Long Term** NEAR LONG	
	High	Low	~~High~~	~~Low~~
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.		X		X
2. Understand the hydrology and hydraulics of the watersheds. DONE		X		X
3. Identify priorities for water supply enhancements.	X			X
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	X			X
5. Develop an understanding of the watershed's ecosystem balance.		X		X
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.		X		X
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: MARGARET FALKNER Agency/ Community: LOCSD

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	~~High~~ Near	~~Low~~
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	X		X	
2. Create a state approved groundwater monitoring program at community or subregion level.	X		X	
3. Determine the safe yield of coastal aquifers. continue	X		X	
4.				
5.				
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: MARGARET FALKNER Agency/ Community: LOCSD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Identify, protect, and enhance aquifer recharge areas.	X			X
2. Distinguish the root cause of flooding problems.	X		X	
3. Restore floodplains, streams and rivers. MNEP	X			X
4. Promote low impact development projects. County	X		X	X
5. Develop financial programs for drainage and flood management projects. ? County/State				
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: MARGARET Agency/ Community: LOCSD

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

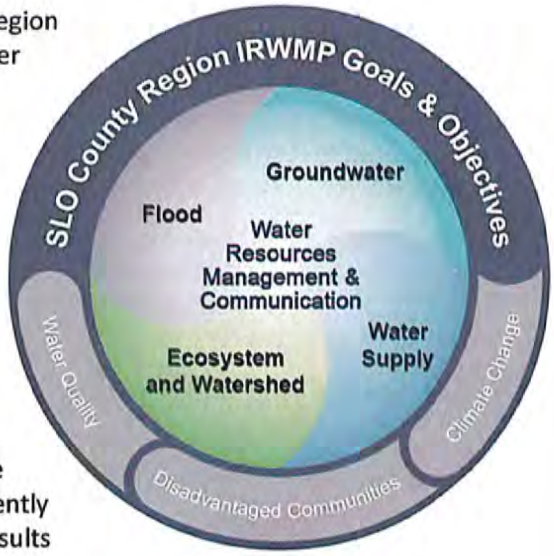
North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term NEAR LONG	
	High	Low	~~High~~	~~Low~~
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Initiate region wide discussions on conservation and reuse options.	X		X	
4. INDIVIDUAL HOMEOWNER - OUTREACH & EDUCATION				
5. ENFORCEMENT ?				
6.				
7.				

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 9:00 am -11:00 am, Morro Bay Veterans Hall, 209 Surf Street, Morro Bay

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a low or high priority (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be achieved over a short term period, or would it require a long term period to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COAST
SUB-REGION PRIORITIES

Name: Meredith Hardy Agency/ Community: Calif. Cons Corps

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	X		X	
2. Conduct sub-region study on maximum use of recycled water.		X	X	
3. Study the impacts of climate change on coastal community water supplies.	X			X
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	X		X	
5. Implement water conservation programs and measures.	X		X	
6. Watershed wide Water budget / instream flow Study	X		X	
7.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Meredith Hardy Agency/ Community: Calif. Conservation Corps

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☒	☐	☒	☐
2. Understand the hydrology and hydraulics of the watersheds.	☒	☐	☒	☐
3. Identify priorities for water supply enhancements.	☒	☐	☒	☐
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☒	☐	☒	☐
5. Develop an understanding of the watershed's ecosystem balance.	☒	☐	☒	☐
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☒	☐	☒	☐
7. This is my priority	☐	☐	☐	☐
8. Instream flow Studies	☒	☐	☒	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☒	☐	☒	☐
2. Create a state approved groundwater monitoring program at community or subregion level.	☒	☐	☒	☐
3. Determine the safe yield of coastal aquifers.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Meredith Hardy Agency/ Community: Calif. Cons. Corps

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☒	☐	☒	☐
2. Distinguish the root cause of flooding problems. Don't we know this?	☒	☐	☒	☐
3. Restore floodplains, streams and rivers.	☒	☐	☒	☐
4. Promote low impact development projects.	☒	☐	☒	☐
5. Develop financial programs for drainage and flood management projects.	☒	☐	☒	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Calif Cons Corp Agency/ Community: Calif Cons Corps

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

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North Coast Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Initiate region wide discussions on conservation and reuse options.	☒	☐	☒	☐
4. Fund an Americorps type program for outreach, monitoring community & youth (could be managed through Calif. Cons Corps	☒	☐	☒	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

July 12, 2013

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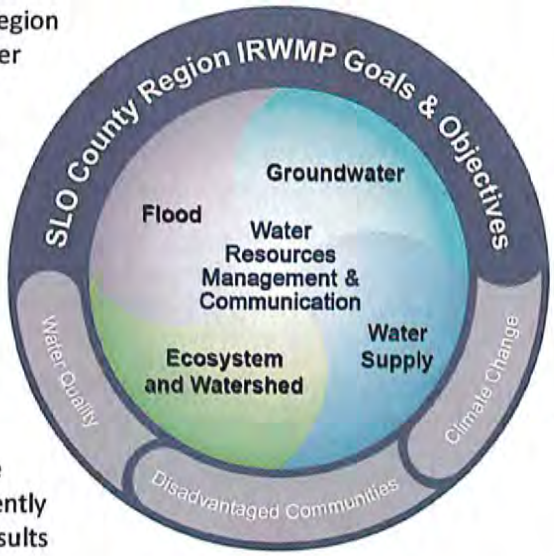

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NORTH COAST
SUB-REGION PRIORITIES

Name: Kuri Wagner

Agency/ Community: Wallace Group/LOCSD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small coastal communities with alternatives analysis and financial requirements.	X		X	
2. Conduct sub-region study on maximum use of recycled water.	X		X	X
3. Study the impacts of climate change on coastal community water supplies.		X		X
4. Seek agency cooperation in regionalizing drinking water, recycled water for irrigation and wastewater.	X		X	
5. Implement water conservation programs and measures.	X		X	X
6. Seawater Intrusion Mitigation	X		X	
7.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Kari Wagner Agency/ Community: Wallace Group/LOCSD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Conduct a study on cost-effective methods of improving wastewater discharge quality.	☐	☒	☐	☒
2. Understand the hydrology and hydraulics of the watersheds. Done	☐	☒	☐	☒
3. Identify priorities for water supply enhancements.	☒	☐	☒	☒
4. Identify priorities for watershed conservation projects that maintain or improve the health of the watershed's ecosystem.	☒	☐	☐	☒
5. Develop an understanding of the watershed's ecosystem balance.	☐	☒	☐	☒
6. Preserve, enhance, restore and conserve the watershed ecosystem balance.	☐	☒	☐	☒
7. This is my priority	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Kari Wagner Agency/ Community: Wallace Group / LOCSD

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop Groundwater Management Plan for all groundwater basins used as drinking water supply.	☒	☐	☒	☐
2. Create a state approved groundwater monitoring program at community or subregion level.	☒	☐	☒	☐
3. Determine the safe yield of coastal aquifers.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐

NORTH COAST
SUB-REGION PRIORITIES

Name: Kari Wagner Agency/ Community: Wallace Group / LOESD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X			X
2. Distinguish the root cause of flooding problems.	X		X	
3. Restore floodplains, streams and rivers.	X			X
4. Promote low impact development projects.	X		X	X
5. Develop financial programs for drainage and flood management projects.				
6.				
7.				
8.				
9.				

NORTH COAST
SUB-REGION PRIORITIES

Name: Kari Wagner Agency/ Community: Wallace Group/LOCSD

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North Coast Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Initiate region wide discussions on conservation and reuse options.	X		X	
4. Outreach + Education - Individual Homeowner	X		X	
5.				
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

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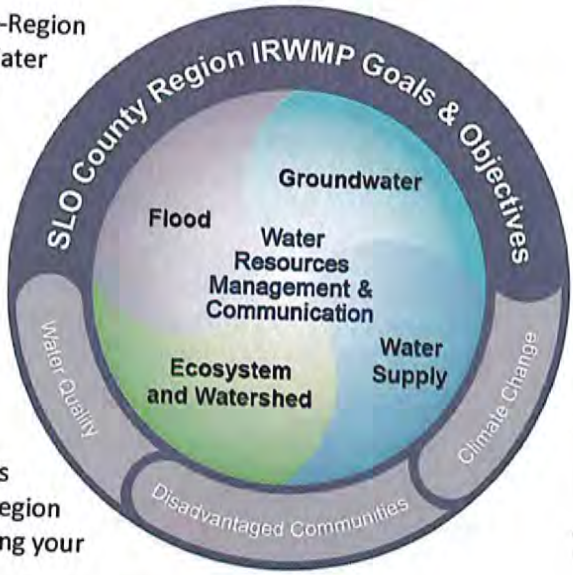

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The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Ted Gilbert Agency/ Community: Ranchers

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X			X
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X		X	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X			X
5. Seek funding for supplemental water supply.				
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Ted Gilbert Agency/ Community: Rancher

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	X	☐	☐	X
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☐	X	☐	X
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Ted Gilbert Agency/Group: Rancher & Dry Farm

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☒	☐	☐	☒
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☐	☒	☒	☐
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☒	☐	☐	☒
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Tod Gilbert Agency/Group: Rancher & Dry Farm

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X			X
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Ted Gilbert Agency/ Community: Cattle & Dry Farm

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X			X
4.				
5.				
6.				
7. Basic Geologic Training	X			X

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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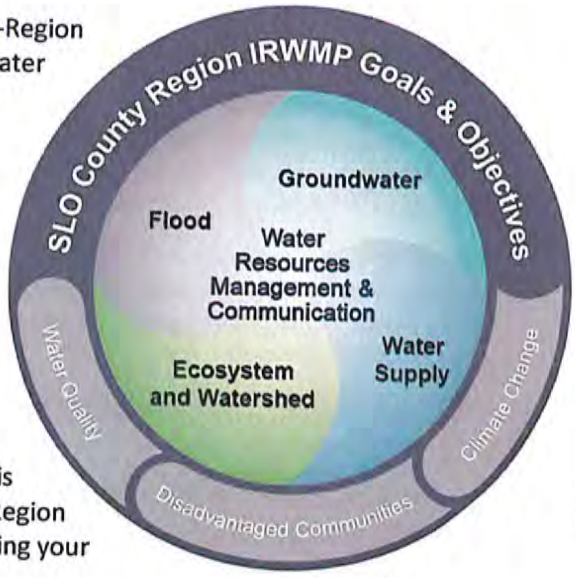

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: Jill Densmore Agency/ Community: USGS

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	☐	☒	☐	☒
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	☒	☐	☐	☒
3. Pursue water conservation efforts in all use sectors and ~~supplemental supply projects (non-groundwater)~~ to reduce dependence on groundwater	☒	☐	☒	☐
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	☒	☐	☐	☒
5. Seek funding for supplemental water supply.	☒	☐	☐	☒
~~6.~~ 3b Pursue Supplemental Supply Projects	☐	☐	☐	☐
7.	☐	☐	☐	☐

Jill Densmore, USGS

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☒	☐	☒	☐
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☒	☐	☐	☒
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☒	☐	☐	☒
4. Determine effect of subsidence on long-term management plans	☒	☐	☒	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

It's would a part in #1

Jill Densmore, USGS

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
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4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices. (watershed model; induce recharge to)	X		X	
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	X			X
3. Control erosion				
4.				
5.				
6.				
7.				
8.				

Jill Densmore, USGS

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

FLOOD MANAGEMENT GOAL

Objectives

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7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Flood Management Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. based on watershed studies	X		X	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Jill Densmore, USGS

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

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North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River. (See additional notes)	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X			X
4. Improve consistency between agencies in management (ie. proper way to destroy well)	X			X
5.				
6.				
7.				

Why? To implement restrictions/adjudications?

Explain trust

USE

Jill Densmore, USGS

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Ecosystem and Watershed Subregion Priorities:

Jill Dunsmore, 2016

Groundwater Monitoring and Management Subregion Priorities:

Part of the ongoing management of the PR basin is the groundwater model and update. For this model to be an effective tool for future development, subsidence that was identified in the late 1990's must be included in the model. Based on a cursory review of the existing groundwater-flow model report, subsidence does not appear to have been modeled. Subsidence will affect any water banking efforts and can affect supplemental water conveyance systems

Flood Management Subregion Priorities:

Jill Dunsmore, USGS

Water Resources Management Subregion Priorities:

The USGS has published National water-use reports since the 1950's. Currently, the 2010 water use is being compiled. This data is presented by state and county. From this data, a more site specific compilation can be obtained to answer priority #1 in this workshop.

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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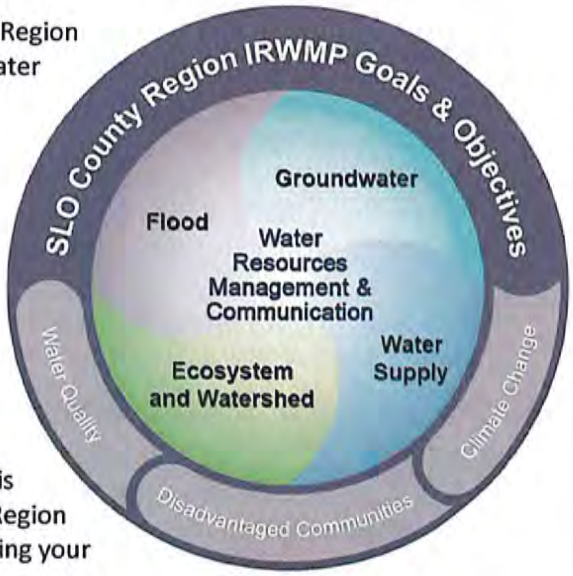

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What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Dorothy Jennings Agency/ Community: SAAG

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	☐	☒	☒	☐
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	☒	☐	☒	☐
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	☒	☐	☒	☐
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	☒	☒	☒	☒
5. Seek funding for supplemental water supply.	☐	☒	☐	☒
6. Improve rain water capture for filtration	☒	☐	☒	☐
7.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Ecosystem and Watershed Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	X		X	
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	X		X	
3. Soil control / soil moisture monitoring program	X		X	
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	X		X	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	X		X	
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	X		X	
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. Based on watershed studies	X		X	
2. Emphasize multibenefit projects	X		X	
3. Redirect + capture from existing development	X		X	
4. ID Flooding areas, restore natural function	X		X	
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Perform an assessment study on current surface + groundwater water rights within the Paso Robles Basin and Salinas River.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
4. Develop a model describing a healthy Salinas River & PR Basin	X		X	
5.				
6.				
7.				

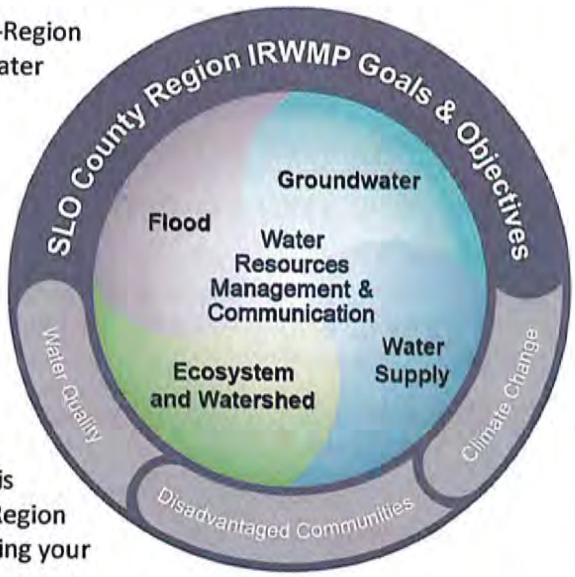
NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

2002 [illegible] started

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Wednesday, July 24, 9:00am - 11:00am, City of Paso Robles Council Chambers, 1000 Spring Street, Paso Robles

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: Dana Merrill

Agency/ Community: Blue Ribbon + PRADOS Paso Robles

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
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6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements. incl future OSDs	☒	☐	☒	☐
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	☒	☐	☒	☐
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	☐	☐	☐	☐
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	☒	☐	☒	☐
5. Seek funding for supplemental water supply.	☒	☐	☒	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Dana Merrill

Agency/ Community: Blue Rubber + Friends Pecan Rubbles

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☐	☑	☑	☐
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☐	☑	☑	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Dana Merrill Agency/Group: Blue Ribbon PRAAGS

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☑	☐	☑	☐
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☑	☐	☑	☐
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☑	☐	☑	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Dana Merrill Agency/Group: Blue Ribbon Comm + RMAGS Paso Robles

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. SALINAS RIVER TRIBUTARY	X		X	
2. Identify & develop Storage incl temporary Rubber-dams at u	X		X	
3. GATES install Salinas Sto DAM —	—		—	
4. ↳ WATER TO PASO BASIN				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Dana Merrill

Agency/ Community: Blue Ribbon Committee, PRRAGES Paso Robles

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

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2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
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4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
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7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
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North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	~~Near~~	~~Long~~
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	☐	☒	☐	☒
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☒	☐	☒
4. Develop specific delivery & utilization plans for NACI, State, Salinas & supplemental Water	☒	☐	☒	☐
5. Develop CSDs for Jardine, Geneseo, + hot spots	☒	☐	☒	☐
6. Assist in creation of CA WATER DISTRICT FOR PASO BASIN	☒	☐	☒	☐
7. Next Phase post Shandon turnout - delivery system	☒	☐	☒	☐

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

* Form CSDs in hotspots then support well assistance, community water service wells or supplemental delivery
* Water Bank via direct delivery from Shandon Turnout to identified Estrella River Recharge area
* Pump plant from Recharge Area to Zone of Depression
* Pipeline Project - Naci Pipeline to Ag Users - excess water used for "in lieu" - Ag shuts off wells
* Salinas River Corridor enhanced supply - raise dam, build new 2nd dam, temporary rubber dams

Ecosystem and Watershed Subregion Priorities:

* Erosion Control + stabilize creeks

Water Resources Management Subregion Priorities:

* Support projects with cities to reduce PASO BASIN pumping – use more NACI + SALINAS SOURCES
* Upgrade NACI system to become PRIMARY rather than SUPPLEMENTAL source for cities (PASO Robles)
* Support new pipeline to utilize NACI untreated water for Ag, Golf + Play Fields who can utilize untreated NACI water. May also include storage to take full allotment (12 months worth) to use in 4-5 month peak season
* Develop community wells and pipelines to future CSD's - Jardine, Union, Geneseo, El Pinar, etc

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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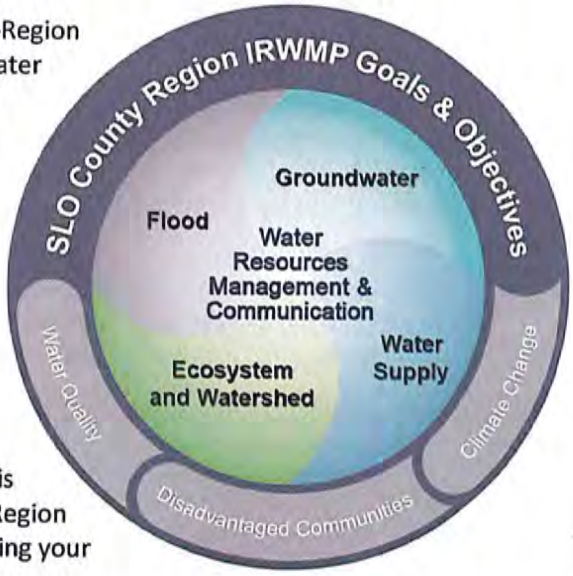

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: Steve Tanaka Agency/ Community: San Miguel CSD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X			X
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X		X	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X			X
5. Seek funding for supplemental water supply.		X		X
6. Enhance Water Infiltration	X		X	
7. BB. Supplemental Water		X		X

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Steve Tanaka Agency/ Community: San Miguel CSD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☒	☐	☒	☐
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☐	☒	☐	☒
3. Soil Control/Monitoring	☐	☒	☐	☒
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Steve Tanaka Agency/Group: San Miguel CSD

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	X		X	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	X		X	
3. Seek funding for ~~supplemental water~~, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	X		X	
4. Seek funding for supplemental water		X		X
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Steve Tanaka Agency/Group: San Miguel CSD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X		X	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Steve Tanaka Agency/ Community: San Miguel CSD

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	☑	☐	☒	☐
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Priority projects of supplemental water should always be a separate project not combined with conservation or other augmentation options

Ecosystem and Watershed Subregion Priorities:

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

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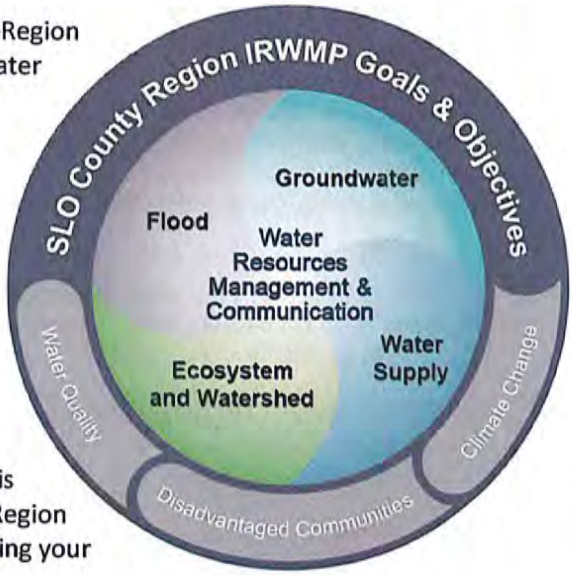

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Join us at the IRWM Sub-Region Public Workshop: Wednesday, July 24, 9:00am - 11:00am, City of Paso Robles Council Chambers, 1000 Spring Street, Paso Robles

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

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What's IRWM?

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The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Vanessa Espinal Agency/ Community: Blue Ribbon

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X			
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X			
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X			
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X			
5. Seek funding for supplemental water supply.	X			
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: [illegible] Agency/ Community: Blue Ribbon

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☐	☐	☐	☐
2. Understand watershed functionality and identify specific priorities for ensuring watershed health. Soil Control	☐	☐	☐	☐
3. Increase Fresh. Infiltration	☒	☐	☐	☐
4. Soil Moisture Monitoring	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☐	☐	☐	☒
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☒	☐	☒	☐
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☐	☒	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. Based on Watershed studies.	X		X	
2. Restore Natural Flow.		X	X	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
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North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	☐	☒	☒	☐
2. Develop a SLO IRWMP Project for Round 3. Mgmt Objective Areas.	☐	☐	☐	☐
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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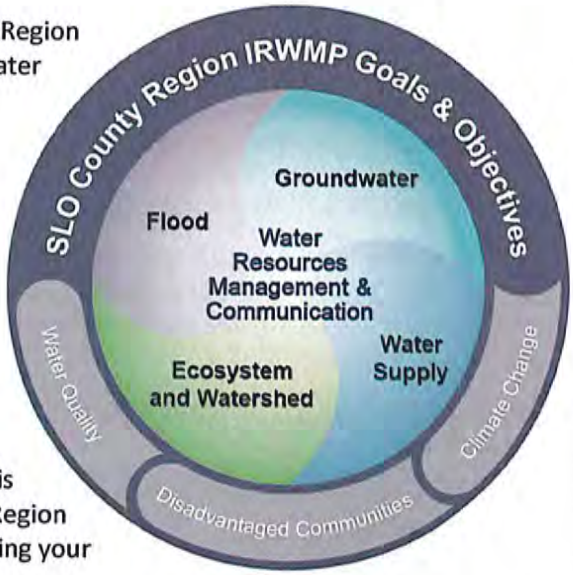

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: BRUCE HARDCASTLE Agency/ Community: KLOR GN RD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X		X	
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X		X	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.		X		X
5. Seek funding for supplemental water supply.		X		X
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: BRUCE HARDCASTLE Agency/ Community: KILOR CAN RD.

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	X		X	
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	X		X	
3. IDENTIFY RIPARIAN CHANGES	X		X	
4. MITIGATE RIPARIAN DRYING	X		X	
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Bruce Hardcastle Agency/Group: Kiler Cyn Rs.

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
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4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☐	☒	☐	☒
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☒	☐	☒	☐
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: BRUCE HANDCASTLE Agency/Group: KICER CYN RD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	X		X	
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: BRUCE HARDCASTLE Agency/ Community: KILLER CYN RD.

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	X		X	
2. Develop a SLO IRWMP Project for Round 3.				
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.				
4. ESTABLISH TRUST BETWEEN	X		X	
5. COUNTY AND CITIZENS				
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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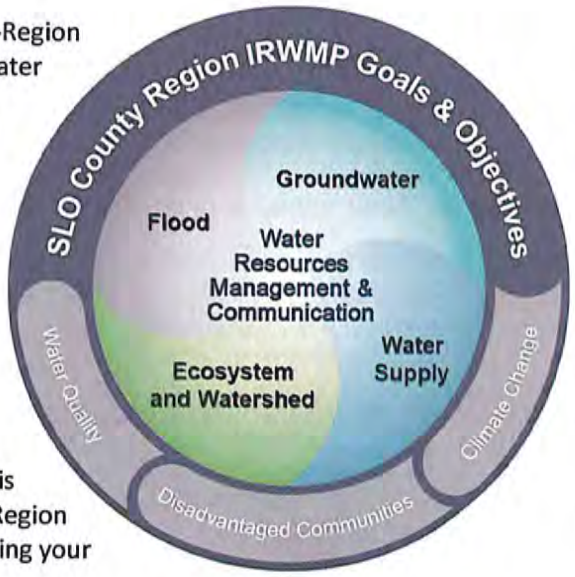

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: Patricia Wilmore Agency/ Community: Paso Robles Wine Country Alliance (PRWCA)

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	X
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X		X	
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X X		X X	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X		X	X
5. Seek funding for supplemental water supply.	X		X	
6. Increase fresh water infiltration	X		X	
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Patricia Wilmore Agency/ Community: PRWCA

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices. recharge	X		X	
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	X		X	
3. Erosion control + monitoring				
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Patricia Wilmore Agency/Group: PRWCA

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	X		X	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.		X		X
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	X		X	
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Patricia Wilmore Agency/Group: PRWCA

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. Based on Watershed studies	X		X	
2. Add (6)	X		X	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Patricia Wilmore Agency/ Community: PRWCA

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

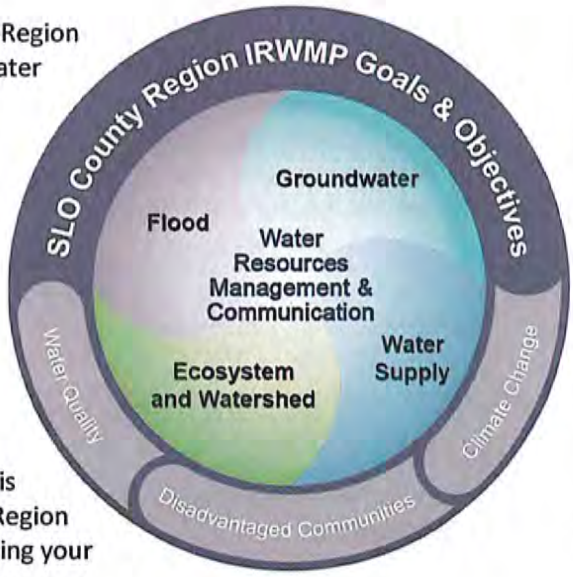
North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	☐	☒	☐	☒
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
4. Monitor surface water flows	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



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NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X		X	
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X		X	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X		X	
5. Seek funding for supplemental water supply.	X		X	
6. Increase freshwater retention & infiltration	X		X	
7. Pursue supply projects (non groundwater)	X		X	

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Laura Edwards Agency/ Community: US-LT RCD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality ~~and/or~~ increase groundwater elevations using currently adopted best management practices.	☑	☐	☑	☐
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☐	☒	☒	☐
3. Erosion Control / Soil moisture monitoring	☒	☐	☑	☐
4. Develop watershed / freshwater management plans in data poor watersheds	☒	☐	☑	☐
5.	☐	☐	☐	☐
6. 1B	☒	☐	☑	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

1A 1B

program to include

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

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North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☑	☐	☑	☐
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☐	☑	☑	☐
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☑	☐	☑	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. based on watershed studies	✓		✓	
2. identify flood prone areas to protect developed areas by restoring natural flow or restorative action	✓		✓	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

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5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
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North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River. vs. use	☑	☐	☑	☐
2. Develop a SLO IRWMP Project for Round 3.	☐	☐	☐	☐
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops. issues	☐	☑	☑	☐
4. monitoring surface water flows & understanding surface water rights in/in basin	☐	☑	☑	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Seeing water supply listed separately from watershed priorities becomes instantly polarizing in my mind. Each of these topics cannot exist without each other and balancing the two requires equal & simultaneous review of them.

Ecosystem and Watershed Subregion Priorities:

NORTH COUNTY
SUB-REGION PRIORITIES

Stakeholder 2002
Holistic Approach

July 12, 2013

Prioritize objects - make the measurable

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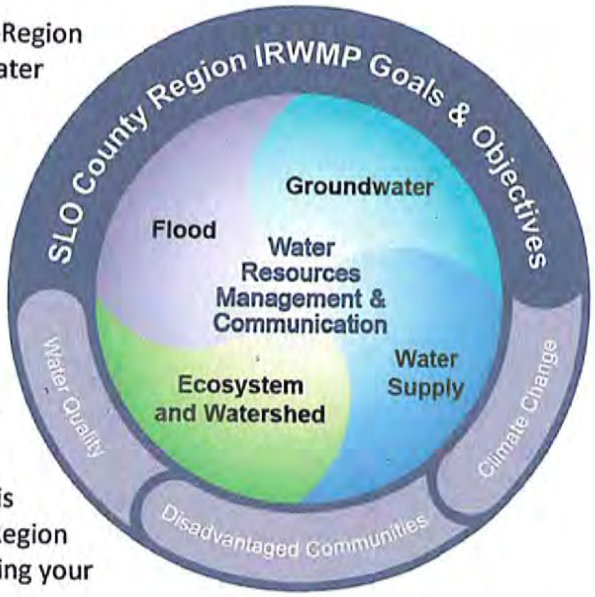

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: Willy Cowden (farmer) Agency/ Community: Shandon

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	✓		Both	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	✓		"	
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	✓✓✓		"	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	✓		Both	
5. Seek funding for supplemental water supply.	✓		Both	
6. Support & Enhance Water infiltration & the development of practices & projects	✓✓✓		"	
7. " " NRCS Funding to design & to implement projects to enhance water infiltration	✓✓✓		"	

All should be ranked with high priority. Now we pursue them all w. high vigor for the long haul.

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Willy Cowan Farmer Agency/ Community: Shandon

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
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5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.				
2. Understand watershed functionality and identify specific priorities for ensuring watershed health				
3. Develop & Implement BMP's for Watershed infiltration & Erosion Control	✓		High	& Low
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Willy Conlon Farmer Agency/ Community: Shandon

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives 1a: To understand groundwaters + conditions

1a Goofy Language 2 ideas

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to ~~help understand groundwater issues and~~ enhance conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	~~High~~	Low
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	✓		Never ✓	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	✓✓		✓	
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility. NO		✓		
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Willy Cunha Agency/ Community: Shandon

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Identify, protect, and enhance aquifer recharge areas.				
2. Identify & Support opportunities to facilitate	VVV		Now	
3. ~~Protect~~ ground water recharge				
4. on a macro & micro scale				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Willy Cowan Farmer Agency/ Community: Shandon

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals. ?? - we should never do those things but why list here?
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low		Low
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River. don't do		✓	No	✓
2. Develop a SLO IRWMP Project for Round 3. who cares, not me				
3. Develop methods to reach out to community on local water-related information and ~~dates for subregion meetings and workshops.~~ on Practices for Conservation	✓✓✓		Near	Mid Far
4. to increase participation				
5.				
6.				
7.				

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

To research, define & then implement practices and projects to enhance infiltration of water from our Watershed to the Paso Robles Water Basin.

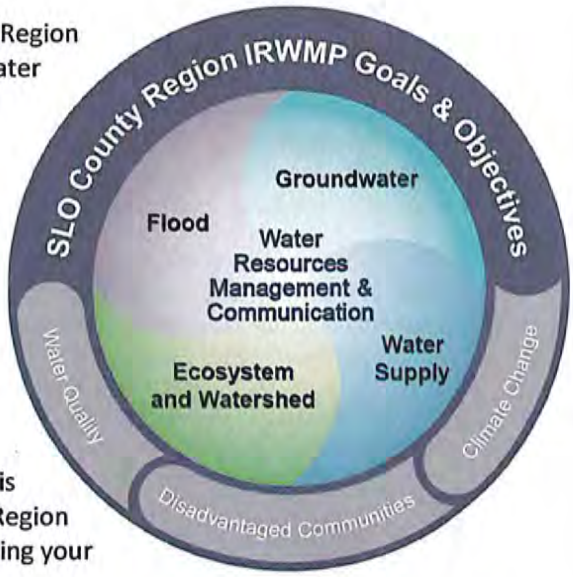
Ecosystem and Watershed Subregion Priorities:

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Wednesday, July 24, 9:00am - 11:00am, City of Paso Robles Council Chambers, 1000 Spring Street, Paso Robles

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X			X
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X		X	
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X			X
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X		X	
5. Seek funding for supplemental water supply.		X	X	
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☐	☒	☐	☒
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☐	☒	☐	☒
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	X		X	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	X			X
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.		X	X	
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☐	☒	☐	☒
2.	☐	☐	☐	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
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Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.		X		X
4.				
5.				
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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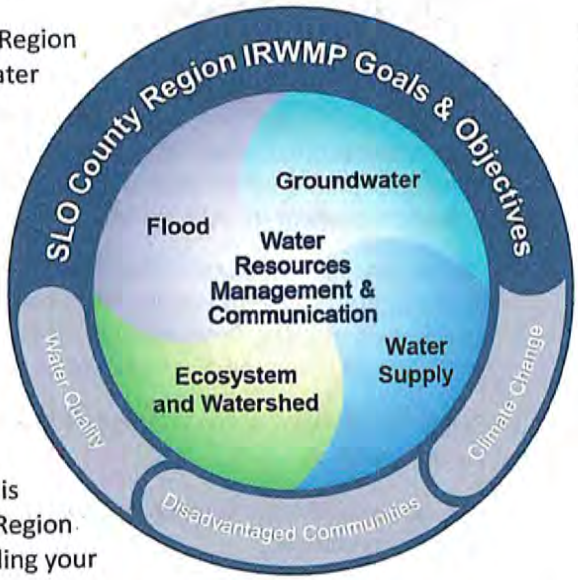

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mary Russell Agency/ Community: Shandon

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	X
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	✓		X	X
3. ~~Pursue water conservation efforts~~ In all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	✓		✓	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.				✓
5. Seek funding for supplemental water supply.				✓
6. Support & enhance water infiltration	X		X	
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mary Russell Agency/ Community: Shandon

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☐	☐	☐	☑
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☑	☐	☑	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mary Russell Agency/Group: Shandon

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Groundwater Monitoring and Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☑	☐	☑	☐
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☐	☐	☐	☑
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☐	☐	☑	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mary Russell Agency/Group: Shandon

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☑	☐	☑	☐
2.	☐	☐	☐	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mary Russell Agency/ Community: Shandon

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
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6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	✓		✓	
2. Develop a SLO IRWMP Project for Round 3.				
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.				✓
4.				
5.				
6.				
7.				

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Hasn't the following already been done? "Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River."

Ecosystem and Watershed Subregion Priorities:

Groundwater Monitoring and Management Subregion Priorities:

Flood Management Subregion Priorities:

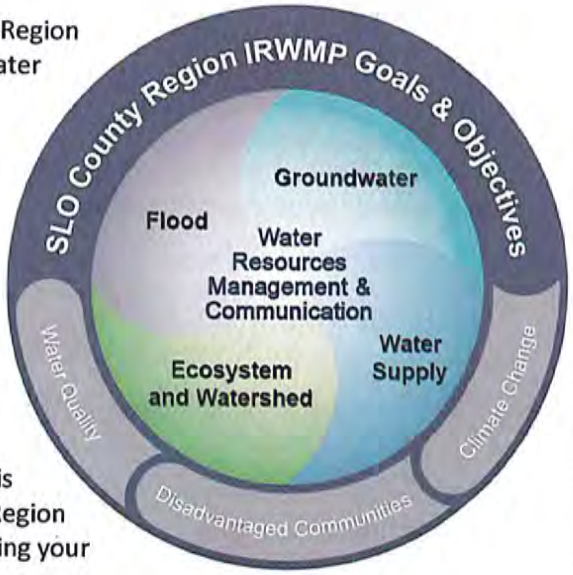
Water Resources Management Subregion Priorities:

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Wednesday, July 24, 9:00am - 11:00am, City of Paso Robles Council Chambers, 1000 Spring Street, Paso Robles

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: J Harris Agency/ Community: Todd Creek

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	☐	☒	☐	☒
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	☐	☒	☐	☒
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	☒	☐	☐	☒
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	☒	☐	☐	☒
5. Seek funding for supplemental water supply.	☒	☐	☒	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: J. Harris Agency/ Community: Toad Creek

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Ecosystem and Watershed Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☐	☒	☐	☒
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☒	☐	☐	☒
3. ~~Utilize other Abstract methods of Estimation~~ ASA "Terraced" Slopes Above Creeks.	☐	☒	☐	☒
4. Not Allowing Watershed Areas be Paved	☐	☒	☐	☒
5. Protect threatened species with Stream Restoration / open Flooding Areas	☒	☐	☐	☒
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: J. Davis Agency/Group: Toad Creek

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☐	☒	☐	☒
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☐	☒	☐	☒
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☒	☐	☒	☐
4. Management - Not some focus on evaporation from Pooling	☐	☒	☐	☒
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: J. Harris Agency/Group: Toad Creek

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas.	☐	☐	☐	☐
2. R- storm Natural Flow	☒	☐	☐	☒
3. Allow Property Owners to Clean	☒	☐	☒	☐
4. Work with Community to Open existing Storm Creek	☒	☐	☒	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: J. Harris Agency/ Community: Toad Creek

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and ~~promote education~~ for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects. ?
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.		X		X
4.				
5.				
6.				
7.				

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Ecosystem and Watershed Subregion Priorities:

open systems to new - proven methods
by Private Property owners

Groundwater Monitoring and Management Subregion Priorities:

Focus on Rules and Regulations
Ramping clean up by property owners

Flood Management Subregion Priorities:

1) Keep existing flows moving
2) Make Development fit flow to existing waterways
OR Require Improvements or expansion of such

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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SUB-REGION PRIORITIES

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5. Seek funding for supplemental water supply.	☒	☐	☐	☒
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COUNTY
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Name: _____ Agency/ Community: _____

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	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☐	☒	☐	☒
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☒	☐	☒	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
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NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

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North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☐	☐	☐	☐
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☐	☐	☐	☐
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/Group: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. Based on watershed studies	X		X	
2. Restore natural flow Identify areas subject to flooding &		X		X
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

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7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

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North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	☐	☒	☐	☒
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
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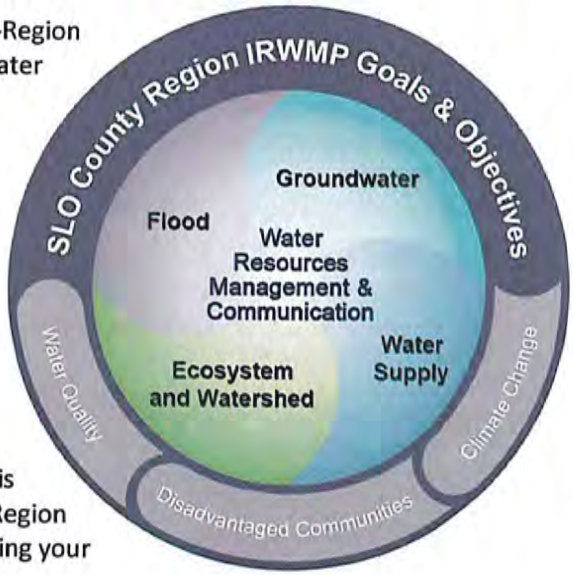

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NORTH COUNTY
SUB-REGION PRIORITIES

Name: Gwen Pelfrey Agency/ Community: Templeton Resident

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X		X	
3. Pursue water conservation efforts in all use sectors ~~and supplemental~~ A ~~supply projects~~ (non-groundwater) to reduce dependence on groundwater		X		X
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X		X	
5. Seek funding for supplemental water supply.				
6. 3B Supplemental supply projects ...	X		X	
6. Increase fresh water infiltration	X		X	

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Gwen Peltrey Agency/ Community: Templeton Resident

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Ecosystem and Watershed Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Develop ~~quantifiable control studies~~ on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	☒	☐	☒	☐
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	☒	☐	☒	☐
3. Soil Control & Moisture Monitoring	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Gwen Peltzer Agency/Group: Templeton Resident

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	☒	☐	☒	☐
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	☒	☐	☒	☐
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Gwen Peltrey Agency/Group: Templeton Resident

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. based on watersheds	☒	☐	☒	☐
2. Identify flood prone areas	☒	☐	☒	☐
3. Reduce flood and capture water	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Gwen Petrey Agency/ Community: Templeton Resident

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	☒	☐	☒	☐
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

NORTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.

A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Wednesday, July 24, 9:00am - 11:00am, City of Paso Robles Council Chambers, 1000 Spring Street, Paso Robles

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Joy Sprague Agency/ Community: SLO county Resident

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

DAC
Concerns Jardine

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X		X	
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X		X	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X			X
5. Seek funding for supplemental water supply.	X		X	
6. ~~Pursue~~ Increase + support water infiltration projects	X		X	
7. Pursue water conservation efforts in all use sectors and supplimental supply projects	X		X	

3A

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Joy Sprague Agency/ Community: SLO County Resident

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	X		X	
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	X		X	
3.				
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Joy Sprague Agency/Group: SLO County Resident

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	X		X	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	X		X	
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	X		X	
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Joy Sprague Agency/Group: SLO County Resident

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Identify, protect, and enhance aquifer recharge areas. Based on watershed areas	X		X	
2. Identify areas suspect to Floodings	X			X
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Joy Sprague Agency/ Community: SLO county Resident

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Supply Priorities ~~monitoring surface water~~ ?	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
4.				
5.				
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Tina Mayer Agency/ Community: Templeton CSD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	~~High~~ Near	~~Low~~ Long
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X			X
3. Pursue water conservation efforts in all use sectors ~~and~~ supplemental supply projects (non-groundwater) to reduce dependence on groundwater	X		X	X
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X			X
5. Seek funding for supplemental water supply.	X		X	
6. Infiltration Projects, Increase/Enhance	X			X
7.				

Conservation
Supplemental

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mayer Agency/ Community: TCSD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Ecosystem and Watershed Priorities**	**High or Low Priority**		**Near or Long Term**	
Groundwater/Watershed management	High	Low	High	Low
1. Develop quantifiable control studies on manmade actions to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	X			X
2. Understand watershed functionality and identify specific priorities for ensuring watershed health	X			X
3. Soil Control - Erosion Control & Monitoring	X			X
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mayer Agency/ Community: TCSD

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions. ✓
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

FRACFING?

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	~~High~~	~~Low~~ Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	X		X	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin.	X		X	
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	X		X	
4.				
5.				
6.				
7.				
8.				

A lot of these are also long term

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mayer Agency/ Community: TCSD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Identify, protect, and enhance aquifer recharge areas.	X			X
2. Identify Flood Prone areas, improve flow	X			X
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Mayer Agency/ Community: TCSD

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

change description to read "use of water" because "rights" seem to be understood. Eliminate this priority

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Low Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River. (change word to 'use')		X		X
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X			X
4. Increase confidence among agencies	X			X
5.				
6.				
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Keith Larson Agency/ Community: City of Paso Robles

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term (Near / Long)	
	High	Low	High	Low
1. Update Water Supply Capital Programs for small inland water systems with alternatives analysis and financial requirements.	X		X	
2. Seek agricultural, rural, and urban opportunities, working with other agencies and regional partners, to develop conjunctive use and drought year water supplies, including private groundwater pumpers.	X			X
3. Pursue water conservation efforts in all use sectors and supplemental supply projects (non-groundwater) to reduce dependence on groundwater (30) (30)	X X		X X	
4. Pursue cost- effective and technically feasible conjunctive use projects to increase water supplies for agricultural, rural, and urban water users.	X			X
5. Seek funding for supplemental water supplies	X		X	
6. Support and Enhance Increase infiltration to GW Basin	X		X	
7.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Keith Lawson Agency/ Community: City of Paso Robles

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term (near / long)	
	High	Low	High	Low
1. Develop ~~quantifiable control~~ studies ~~on~~ to manmade actions ~~to~~ to improve groundwater quality and/or increase groundwater elevations using currently adopted best management practices.	X		X	
2. Understand watershed functionality and identify specific priorities for ensuring watershed health		X		X
3.				
4.				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Keith Larson Agency/ Community: City of Paso Robles

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	~~High~~ Near	~~Low~~ Long
1. Improve groundwater monitoring programs with participation from urban and agricultural pumpers to track changes in groundwater levels and groundwater quality.	X		X	
2. Establish safe sustainable yields with an emphasis of improving the larger regional basin. (basin safe-yield)	X		X	
3. Seek funding for supplemental water, conjunctive use and/ or groundwater banking programs to provide greater operational flexibility.	X		X	
4. Formation of CSDs				
5.				
6.				
7.				
8.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Keith Larson Agency/ Community: City of Paso Robles

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term (near / long)	
	High	Low	High	Low
1. Identify, protect, and enhance aquifer recharge areas. already being done with LID policies	X		X	
2.				
3. Identify flood prone areas and take	X		X	
4. corrective action to alleviate flood				
5. problems				
6.				
7.				
8.				
9.				
10.				

NORTH COUNTY
SUB-REGION PRIORITIES

Name: Keith Larson Agency/ Community: City of Paso Robles

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

North County Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Perform an assessment study on current water rights within the Paso Robles Basin and Salinas River.		X		X
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Develop methods to reach out to community on local water-related information ~~and dates for subregion meetings and workshops~~.	X		X	
4.				
5.				
6.				
7.				

don't understand?

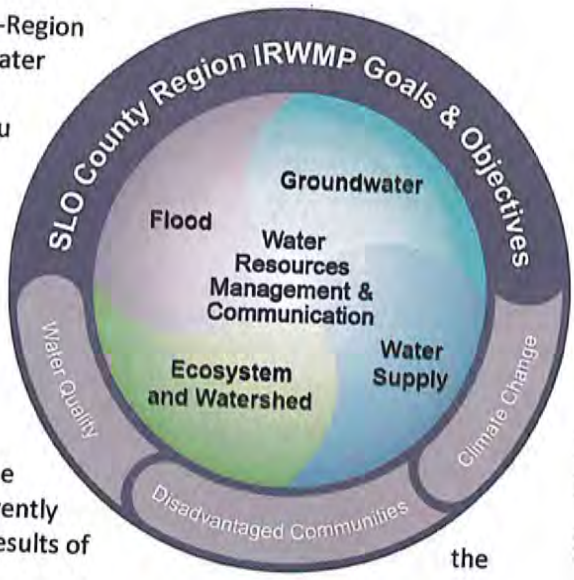
COUNT AS 2 — CD 7/23/13

SOUTH COUNTY SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of public workshops scheduled on the

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: BEN FINE Agency/ Community: PISMO BEACH

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
~~1. Seek agricultural and urban supplemental water supplies~~	☐	☐	☐	☐
2. Study the impacts of sea level rise on coastal community water supplies.	☒	☒	☒	☐
3. Develop supplemental water supplies (recycled water)	☒	☐	☐	☒
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	☒	☐	☒	☐
5. Investigate options for optimizing use of local surface water storage	☒	☐	☒	☐
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	☐	☒	☒	☐
~~7. Evaluate potential for enhanced rainfall~~	☐	☒	☐	☒

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☐	☒
9. Implementation of coordinated regional conservation programs	☐	☒	☒	☐
10. Recycled water	☒	☐	☐	☒
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Ben Finz Agency/ Community: Pismo Beach

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	☐	☒	☒	☐
2. Develop an inventory of diversions from surface water bodies	☒	☐	☒	☐
3. Install stream gauges on key regional creeks	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Ben Fine Agency/ Community: Pismo Beach

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☒	☐
3. Develop management tools (conceptual and groundwater flow models)	☒	☐	☐	☒
4. Uniform groundwater monitoring program for the South County groundwater basins	☒	☐	☒	☐
5. Uniform metering and reporting for all groundwater pumping in the South County	☒	☐	☐	☒
6. Increased groundwater monitoring (focused on storage)	☐	☐	☐	☐
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☒	☐	☒	☐
8. Investigate and quantify subsurface flows between the SMGB management areas	☒	☐	☒	☐
9. Investigate and quantify available storage and reliable yield	☒	☐	☒	☐

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins WE ALREADY HAVE THIS	☐	☐	☐	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region IN THE WORKS?	☐	☐	☐	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☒	☐	☐	☒
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Ben Fine Agency/ Community: Pismo Beach

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	☐	☐	☐	☐
2. Increase stormwater retention and percolation	☒	☐	☒	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Ben Fine Agency/ Community: Pismo Beach

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X		X	
5.				
6.				
7.				

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Recycled water w/ possible ground water injection

Ecosystem and Watershed Subregion Priorities:

COUNT AS 2 -CD 7/23/13

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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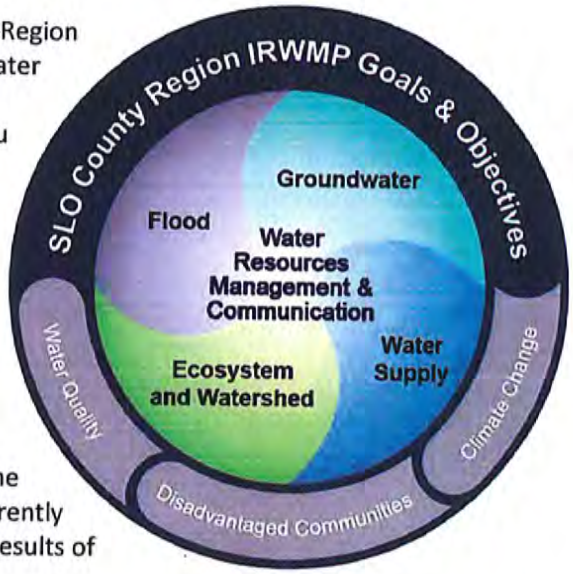

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SOUTH COUNTY
SUB-REGION PRIORITIES

Name: RON MUNDS / WADE HORTON Agency/ Community: CITY OF SLO

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Seek agricultural and urban supplemental water supplies	X		X	
2. Study the impacts of sea level rise on coastal community water supplies.		X		X
3. Develop supplemental water supplies	X		X	
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)		X		X
5. Investigate options for optimizing use of local surface water storage	X		X	
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	X		X	
7. Evaluate potential for enhanced rainfall		X		X
8. Improved diversification of water supply resources for the South County agencies	X		X	

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
9. Implementation of coordinated regional conservation programs	X		X	

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: RON MUNDS / WADE HORTON Agency/ Community: CITY OF SLO

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Finalize/Implement AG Creek Habitat Conservation Plan		X		X
2. Develop an inventory of diversions from surface water bodies		X		X
3. Install stream gauges on key regional creeks		X		X
4.				
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: RON MUNDS / WADE HORTON Agency/ Community: CITY OF SLO

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop groundwater facilities or projects that increase operational and management flexibility.	II	X	II	X
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	X	II	X	II
3. Develop management tools (conceptual and groundwater flow models)	X	II	X	II
4. Uniform groundwater monitoring program for the South County groundwater basins	II	II	II	II
5. Uniform metering and reporting for all groundwater pumping in the South County	II	II	II	II
6. Increased groundwater monitoring (focused on storage)	II	II	II	II
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	II	II	II	II
8. Investigate and quantify subsurface flows between the SMGB management areas	II	X	II	X
9. Investigate and quantify available storage and reliable yield	X	II	X	II
10. Policies to maintain health of the South County's groundwater basins	X	II	X	II

Roll into 3

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region		X		X
12. Develop groundwater facilities or projects that increase operational and management flexibility.				
13.				
14.				
15.				
16.				
17.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: RON MUNDS / WADE HORTON Agency/ Community: CITY OF SLO

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop projects to improve the levels of flood protection in urbanized areas.	X		X	
2. Increase stormwater retention and percolation		X		X
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: RON MUNDS / WADE HORTON Agency/ Community: CITY OF SLO

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X		X	
5.				
6.				
7.				

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Ecosystem and Watershed Subregion Priorities:

Groundwater Monitoring and Management Subregion Priorities:

Flood Management Subregion Priorities:

Water Resources Management Subregion Priorities:

Michael LeBrun; NipomoCSD

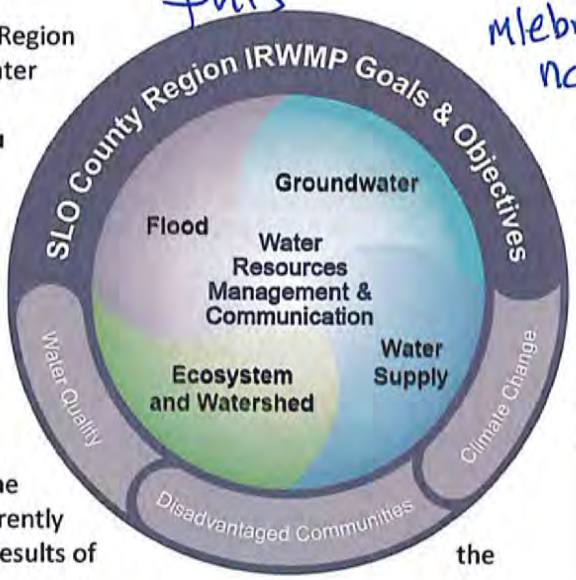
SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

* Please send me scan copy of this mlebrun@ncsd.ca.gov

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of public workshops scheduled on the:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: LEBRUN Agency/ Community: N. Pomo CSD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term		
	High	Low	Near	Long	
1. Seek ~~agricultural and urban~~ supplemental water supplies	X			X	
2. Study the impacts of sea level rise on coastal community water supplies.		X		X	
3. Develop supplemental water supplies	X	X		X	= 1.
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)		X		X	
5. Investigate options for optimizing use of local surface water storage					= 1.
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)		X		X	Ø supply source?
7. Evaluate potential for enhanced rainfall		X		X	

SWP = State water project

MSL

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	X			X
9. Implementation of coordinated regional conservation programs	X		X	
10. Reclaim wastewater that goes to outfall/ocean	X			X
11.				

Near = ≤ 5 yrs

Long = > 5 yrs

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: LEBRUN Agency/ Community: Nipomo CSD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X		X	
2. Develop an inventory of diversions from surface water bodies	X		X	
3. Install stream gauges on key regional creeks	X		X	
4.				
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: LEBRUN Agency/ Community: N. PRMO CSD

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term		
	High	Low	Near	Long	
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☒	☐	
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☐	☐	
3. Develop management tools (conceptual and groundwater flow models)	☐	☐	☐	☐	
4. Uniform groundwater monitoring program for the South County groundwater basins	☐	☐	☐	☐	=3
5. Uniform metering and reporting for all groundwater pumping in the South County	☐	☐	☐	☐	=3
6. Increased groundwater monitoring (focused on storage)	☐	☐	☐	☐	Not what purpose?
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☐	☐	☐	☐	=6
8. Investigate and quantify subsurface flows between the SMGB management areas	☐	☒	☐	☐	=3
9. Investigate and quantify available storage and reliable yield	☐	☐	☐	☐	=3

All Monitoring/data collection feeds #3.

What mgmt decisions do we envision being directed by a model?

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☐	☐	☐	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

Part of 3. = 1a #1.

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: M. LeBrun Agency/ Community: Nipomo CSD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	☐	☒	☐	☒
2. Increase stormwater retention and percolation	☐	☒	☐	☒
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

NCSD has limited flooding issues. We 'lose' stormwater to ocean only when santa maria flows to ocean (Nipomo Creek is tributary to SM River) S.M. River to ocean ≈ 1/10 years.

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: LeBrun Agency/ Community: Nipomo CSD

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

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South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X		X	
5.				
6.				
7.				

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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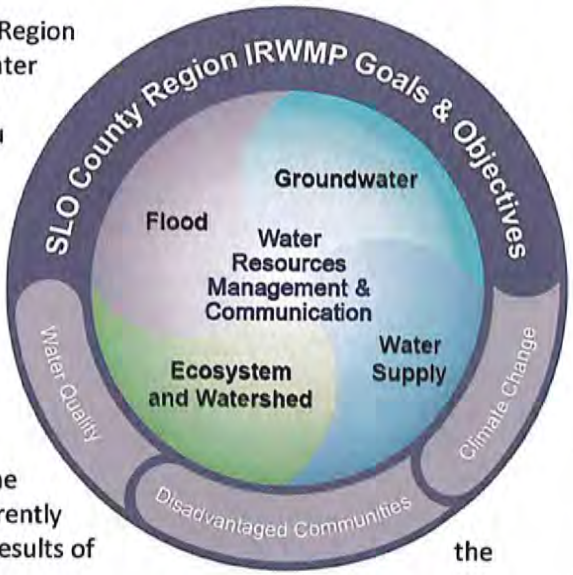

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email to ~~~~
stephn@centralcoastsalmon.com

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Steph Wald Agency/ Community: CCSE

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies	☐	X	☐	X
2. Study the impacts of sea level rise on coastal community water supplies.	X	☐	X	☐
3. Develop supplemental water supplies	☐	X	☐	X
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	X	☐	X	☐
5. Investigate options for optimizing use of local surface water storage	X	☐	X	☐
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	X	☐	X	☐
7. Evaluate potential for enhanced rainfall	☐	X	☐	X

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☐	☒	☒	☐
9. Implementation of coordinated regional conservation programs	☒	☐	☒	☐
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

- Combine #1 and #3
- consider growth management policies as they relate to water supply
- consider dispersing increase of water supply rather than through central infrastructure ie: cisterns, permaculture techniques
  ↑ personal responsibility as done in Arizona

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Steph Wald Agency/ Community: CCSE

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Ecosystem and Watershed Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X		X	
2. Develop an inventory of diversions from surface water bodies	X		X	
3. Install stream gauges on key regional creeks	X		X	
4. Develop an inventory of water permit/rights of surface water	X		X	
5. ~~Determine~~ Assess instream flow needs for surface water flow	X		X	
6. Protect floodplains thru Inventory and easements + other mechanisms	X		X	
7. Protect large working landscapes for watershed process protection	X		X	
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☒
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☒	☐
3. Develop management tools (conceptual and groundwater flow models)	☐	☒	☒	☐
4. Uniform groundwater monitoring program for the South County groundwater basins	☐	☒	☐	☒
5. Uniform metering and reporting for all groundwater pumping in the South County	☒	☐	☒	☐
6. Increased groundwater monitoring (focused on storage)	☒	☐	☒	☐
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☒	☐	☒	☐
8. Investigate and quantify subsurface flows between the SMGB management areas	☐	☒	☐	☒
9. Investigate and quantify available storage and reliable yield	☒	☐	☒	☐

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☐	☒
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☒	☐	☒	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☒
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Steph Wald

Agency/ Community: CCSE

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	X		X	
2. Increase stormwater retention and percolation	X		X	
3. LID projects to reduce runoff + increase infiltration to protect base flow (Slow it Sink it Spread it campaign)	X		X	
4. Flood capture programs decentralized by sub watersheds	X		X	
5. Projects to reduce upstream erosion and downstream sediment movement	X			X
6.				
7.				
8.				
9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Steph Wald Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X		X	
5. Create watershed working groups w/in sub regions		X		X
6.				
7.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Mary Lucey Agency/ Community: OCSD

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. ~~Seek agricultural and urban supplemental water supplies~~				
2. Study the impacts of sea level rise on coastal community water supplies.			X	
3. Develop supplemental water supplies	X			
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	X			
5. Investigate options for optimizing use of local surface water storage		X		
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.) needs to go into Communities-	X			
7. Evaluate potential for enhanced rainfall				X
8. Improved diversification of water supply resources for the South County agencies	X			

Check Valley.

Infrastructure

no Regulatory authority

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
9. Implementation of coordinated regional conservation programs	X			
Develop all delivery systems into	"	"	"	"
Communities who R lacking maint.	"	"	"	"

Plan is not providing any- sound Attempts. in plan..

no Regulatory Authority.

What makes this plan different from other Plans.?

High Light accomplishments in plan. Low Priority X.

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Finalize/Implement AG Creek Habitat Conservation Plan X	X			
2. Develop an inventory of diversions from surface water bodies		X		
3. Install stream gauges on key regional creeks			X	
4.				
5. storm water Retention –	X			
6. [redacted] Re-charging all ground-				
7. water basins.	X			
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

* GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop groundwater facilities or projects that increase operational and management flexibility.		X		
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	X			
3. Develop management tools (conceptual and groundwater flow models)	X			
4. Uniform groundwater monitoring program for the South County groundwater basins	X			
5. Uniform metering and reporting for all groundwater pumping in the South County	X			
6. Increased groundwater monitoring (focused on storage)	X			
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	X			
8. Investigate and quantify subsurface flows between the SMGB management areas	X			
9. Investigate and quantify available storage and reliable yield	X			
10. Policies to maintain health of the South County's groundwater basins	X			

counter ruling?

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	X			
12. Develop groundwater facilities or projects that increase operational and management flexibility.	X			
13.				
14.				
15.				
16.				
17.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop projects to improve the levels of flood protection in urbanized areas.		X		
2. Increase stormwater retention and percolation	X			
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.		X		
2. Develop a SLO IRWMP Project for Round 3.		X		
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X			
4. Maintain collaborative efforts between basin and watershed management groups	X			
5.				
6.				
7.				

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Legislative mandates are meet by ALL stakeholders -

Ecosystem and Watershed Subregion Priorities:

Recharging a % of ALLocations -
uniformed monitoring system -
more information on build-out
and demand -

Groundwater Monitoring and Management Subregion Priorities:

uniformed monitoring.

Flood Management Subregion Priorities:

Re-charge needed - Aquafirs.

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jim Toomey Agency/ Community: WRAC – District IV

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Seek agricultural and urban supplemental water supplies	X		X	
2. Study the impacts of sea level rise on coastal community water supplies.		X		X
3. Develop supplemental water supplies	X			X
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)		X		X
5. Investigate options for optimizing use of local surface water storage		X		X
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	X		X	
7. Evaluate potential for enhanced rainfall	X		X	
8. Improved diversification of water supply resources for the South County agencies		X		X

prepared that provides "*guidelines for residents covering water conservation techniques, and lists of ornamental drought-tolerant plants that would do well in the native soils, etc.). The program shall address all consumer-controlled water uses...*". The MWP would define limitations on exterior irrigation, a drought management plan, a monitoring program to police pumping periods and production volumes, and be enforced by the Homeowners Association (HA) and Mutual Water Company (MWC).

On V.P. 44-45 WAT/mm-1 would make demonstration of compliance a condition before the project advanced to the next phase of the phased development. The other mitigations in this section (WAT/mm-2 through WAT/mm-7) recommend methods by which water use could be minimized,

The WRAC Subcommittee concurs that WAT/mm-1 provides for application of project mitigations through to the completion of Phase 3. However, the missing part of this discussion is the long term policing of water use after the development is built out at the end of Phase 3. There are substantial issues with the creation of an MWC to manage water production and use, and issues concerning the separation or space between, an MWC and an HA. There is some possibility that highly restrictive CC&Rs could be altered by the HA by a vote of the HA after Phase 3 is completed, after which there might be no external policing of water use. The subcommittee therefore would like to see the FEIR define the legal framework that would protect mitigations from degradation upon completion of Phase 3.

(2) PROBLEMS ASSOCIATED WITH SEPARATION OF DOMESTIC PRODUCTION MANAGEMENT AND AGRICULTURAL PRODUCTION MANAGEMENT

Once vineyard water operations are divorced from those of the area covered by the Homeowners Association (HA), there will be nothing to prevent the current ability of the vineyard to pump at any desired level, as the Mutual Water Company (MWC) would have a separate jurisdiction on a different subset of water wells. Any MWC problems concerning well production and safe yield could not be addressed by changing vineyard operations.

V.P.-23 discusses groundwater rights, noting the rights of overlying landowners to withdraw water for beneficial use, which would imply parallel rights to the MWC and to Lucille. The RRDEIR also notes the "reasonable use" provision. It is possible that side-by-side operations might result in litigation, each blaming the other for damage to their systems from overpumping.

The subcommittee would draw attention to California Water Code 106 that states: *106. It is hereby declared to be the established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation.* The FEIR should address this code section in the light of possible conflicts between viney rd and domestic usage.

South County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	High	Low
9. Implementation of coordinated regional conservation programs	X		X	
10. Protect individual well owners	X			X

2009 to March 2011, which included several months of pumping. However, we caution that rainfall during the testing program was 138 percent of average, and also that long term yields of water wells producing from bedrock aquifers, which may have linear fracture systems, commonly are substantially less than short-term yields."

(3) ADDED COMMENTS BY WRAC SUBCOMMITTEE REGARDING SUSTAINABILITY

Several people have expressed concern that production of water from fractured aquifers can be highly productive until the fractures are drained, so that water production will drop quickly and in some cases not recover. Geosyntec notes the difference between fractured aquifers and homogenous aquifers, but sudden production loss was not discussed.

The long term sustainability of groundwater-dependent projects would depend on the balance between withdrawals and recharge. Given the use of 17 inches as an average annual precipitation, nd the total project acreage of 1,910 acres, the 1.42 ft of precipitation yields 2,712 AFY on project lands.

The project water demands are stated (p.VP-37) as a wide range between a very low 277.75 AFY to highs of both 494 FY or 938 AFY based on different conditions and using Master Water Plan numbers. The higher numbers are presented in a letter submitted to Shawna Scott from Gordon Thrup (Appendix H2) by ESA. This would require capture of between 10% to over 30% of the total rainfall as groundwater recharge, both of which are very high numbers compared to the hydrologic literature. For example this study (Bridget R. Scanlon*, Kelley E. Keese, Alan L. Flint, Lorraine E. Flint, Cheikh B. Gaye, W. Michael Edmunds, Ian Simmers, 2006, Global synthesis of groundwater recharge in semiarid and arid regions, Hydrological Processes v. 20 p. 3335-3370) gives a recharge of 0.1 to 5% of rainfall. This is due to both evapotranspiration and runoff taking the majority of the rainfall. Given a very optimistic capture of 5% of precipitation recharging groundwater, it would only provide about half of the lowest water demand (277.75 AFY) of this project. The other half would either have to be taken from other nearby properties or taken from incoming flows of Los Berros Creek.

There is unfortunately no restriction of the amount of water that an individual land owner can extract, which leads to the accumulation of individual parcel overdrafts into the situation manifest in the Paso Robles area today.

[illegible] AND WAT IMPACT 1- ISSUES CONCERNING MANAGEMENT STRUCTURE

(1) CREATION A MUTUAL WATER COMPANY AND A HOMEOWNERS ASSOCIATION TO IMPLEMENT PROJECT MITIGATIONS THROUGH A MASTER WATER PLAN

On V.P. 42 Mitigation WAT/mm-1 in the RRDEIR requires a Master Water Plan be

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jim Toomey Agency/ Community: WRAC District 4

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Finalize/Implement AG Creek Habitat Conservation Plan	X		X	
2. Develop an inventory of diversions from surface water bodies		X		X
3. Install stream gauges on key regional creeks	X		X	
4.				
5.				
6.				
7.				
8.				

subcommittee also received commentary on the Geosyntec studes by Cleath and Harris. The subcommittee also realizes that the conflicts between experts, which is not uncommon in the CEQA process, will be an obstruction to making an optimal decision that maximizes development without threatening long term sustainability of the water supply and wildlife. For this reason, project approvals should er on the side of caution.

(2) VALIDITY OF PUMP TEST RESULTS IN PREDICTING LONG TERM SUSTAINABLE YIELD

The RRDEIR's Appendix H "Review of Well Testing and Sustainable Yield Assessment" has a section starting on p. 21 giving "Conclusions and Recommendations". The following quotes are pertinent:

"The projections of downward water level trends exhibited during testing and the unknown time to possibly achieve equilibrium pumping conditions underscores that time frame is an important issue with respect to long-term viability of the wells to meet the proposed project demands."

and

"With continued pumping at Phase 3 rates, an expanding cone of depression of groundwater elevation will result in capture of more groundwater and an equilibrium condition accompanied by stable water levels may be attained. However, equilibrium groundwater flow conditions may not occur for decades or longer .....) Based on the water level records during Phase 3 pumping, if the linear trend in decreasing groundwater elevations continues at the rates observed during the Phase 3 testing, the water levels in the wells will likely drop below the top of the well screens within months in Wells 10 and 14, and within a few years in Well 15".

The RRDEIR states on V.P.-30 that:

"Based on the available data, groundwater production needed for the proposed project is feasible, but will result in long-term average declines in groundwater levels. Additional depletion of groundwater storage associated with each proposed domestic well appears to be necessary to sustain long-term water production to meet project demands. With continued pumping, equilibrium water levels may be attained in time (Geosyntec 2011, 2013)."

Neither Geosyntec or the WRAC subcommittee consider that this project meets the full definition of sustainability, but Geosyntec indicates that the four wells in the domestic loop would be able to produce 62.4 afy or 38.7 gpm. (V.P.-32) and satisfy project demand. However the degree to which this well production removes water from storage, or further reduce subsurface recharge to Los Berros Creek have not been quantitatively established. Geosyntec defend this production level even after consideration of the following:

"The estimates of viable long-term groundwater production rates reported herein are based on evaluation of water levels recorded in four wells for the period from October

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jim Toomey Agency/ Community: District 4

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop groundwater facilities or projects that increase operational and management flexibility.		X		X
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)		X		X
3. Develop management tools (conceptual and groundwater flow models)	X			X
4. Uniform groundwater monitoring program for the South County groundwater basins	X			X
5. Uniform metering and reporting for all groundwater pumping in the South County	X		X	
6. Increased groundwater monitoring (focused on storage)	X		X	
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	X		X	
8. Investigate and quantify subsurface flows between the SMGB management areas	X			X
9. Investigate and quantify available storage and reliable yield	X			X
10. Policies to maintain health of the South County's groundwater basins		X		X

The differing opinions of experts regarding irrigation demand and rainfall should not be cause to simply accept the numbers provided in the RRDEIR. As vineyard water demand is a critical factor in groundwater sustainability, more supportive data is needed before an average figure is chosen. For example the WRAC subcommittee is concerned that rainfall data and irrigation data is not available for each year that Laetitia has been in wine production, and that water use and local rainfall data cannot be substantiated. This would seem unusual for a weather-dependent agricultural operation.

Without greater substantiation the subcommittee considers that, relative to 2011, precipitation is likely to be lower and irrigation requirements are likely to be higher.

COMMENTS CONCERNING ESTIMATIONS OF RESIDENTIAL WATER DEMAND

V.P.-36 In the RRDEIR Geosyntec states that they concur with applicant's estimate of 0.44 afy/lot, noting that it is higher than the standardized rate of 0.36 afy/lot. The supporting arguments are given in an April 2013 document contained in Appendix H of the RRDEIR supports the duty factor by incorporating assumptions utilized in the Department of Water Resources Model Water Efficiency Ordinance and the 2011 California Green Buildings Standards Code (CGBSC). However the CGBSC cited homes are described as 3 bedroom with 4 occupants without reference as to size. Laetitia is proposing 3000 to 5000 square foot homes on 1 acre lots. For comparison Nipomo CSD's 2010 Urban Water Management Plan prepared by WSC [Water Systems Consulting, Inc.] has recorded actual usages as Multi Family 0.28AFY; Duplexes/Secondary 0.28AFY; Parcel less than 12,768 sq. ft. 0.40AFY; Parcel between 12,769 and 25,536 sq. ft. 0.68AFY; Parcel greater than 25,536 sq. ft. 0.82AFY.

While the 0.36 afy/lot might be defended on the basis of severely restricted landscape irrigation that would be policed through CC&Rs, such CC&Rs may either be changed in the future or violations of the CC&Rs ignored.

For these reasons, the WRAC subcommittee considers the 0.36 afy/lot to be marginally credible but probably underestimating likely future use.

COMMENTS CONCERNING AQUIFER AND WELL TESTING

(1) GENERAL COMMENTS

During the evolution of the RRDEIR there have been a number of documents that have questioned both the methodology used in aquifer and well testing, and the interpretation of the results. These include the original tests by Cleath and Associates, peer review of the tests by Fugro West, and in the RRDEIR analysis by Geosyntec. The WRAC

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region				
12. Develop groundwater facilities or projects that increase operational and management flexibility.				
13.				
14.				
15.				
16.				
17.				

protection removed, as the Master Water Plan assumed 0.25 AFY/A frost protection would be needed in coastal areas (see also Appendix D, Master Water Plan). The 0.45 AFY/A from Appendix H2 and the projected vineyard use of 291.2 AFY gets no further mention in the DEIR, even though the Appendix states :

"Because available records of irrigation rates for the Laetitia vineyards are apparently limited to three years (1994, 2003, and 2011) and rainfall in 1994 and 2011 was well above the estimated average for the Project Area (Geosyntec, 2010), we have used a reasonable conservative approach to calculate baseline water demand of the Laetitia vineyards based on the low water demand value of 0.7 AF/Y per acre for WPA 7 in Table A1 and subtraction of the assumed 0.25 AF/Y per acre for frost protection, which is included in the 0.7 value: 0.7 – 0.25 = 0.45 AF/Y per acre".

The subcommittee questions using Master Water Plan vineyard water numbers derived from Water Planning Area (WPA) 2 for Cambria and WPA 3 (Cayucos) rather than those for Laetitia's geographic location in WPA 7 (South Coast). The evapotranspiration rates for these WPA's are 38.5, 38.2 and 52.1 respectively. In the letter from Geosyntec to Shawna Scott of 4/18/12, the consultants state on p.4:

"Thus, although the reported vineyard water demand values of 0.26 to 0.34 AF/Y per acre for the Laetitia vineyards are substantially lower than predicted for WPA 7 based on calculated water demands (EMA, 2010) presented in Appendix D of the County MMP (Corollo, 2012), the Laetitia vineyard reported values are similar to predicted values for other WPAs in the County if indeed no water is used for frost protection".

The WPAs were developed because there are significant differences in such factors as evapotranspiration rates, so the application of data to WPA 7 from WPAs 2 & 3 is not appropriate.

The WRAC subcommittee also questions the lack of availability of irrigation data, which would usually be an important factor in wine production, and the selection of high rainfall years in providing the limited information available.

The subcommittee notes an inconsistency between V.P.-5, which states *"Average annual production from the onsite irrigation wells was 161 afy between 1999 and 2003"* and the statement that record were only available for the years 1994, 2003 and 2008. If an average annual production was calculated, where is the data for 1999-2002?

As the subcommittee was meeting, the County provided a copy of a letter from Cleath and Harris (CHC) to John Jamech on July 18, 2013, which was copied to San Luis Obispo County. They question a linkage between drought and increased irrigation use and defend figures used in the DEIR and state.

"CHC has documented vineyard water use at Laetitia over several years, including a drought year, where water use was less than the current rate (1994; 13.37 inches of precipitation at County gage 138; 0.25 acre-feet per acre of vineyard). Historical average annual water use in the vineyard has ranged from 0.25 to 0.34 acre-feet per acre, which is much more realistic for future Laetitia water demand than the RRDEIR figures."

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jim Toomey Agency/ Community: WRAC-District 4

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop projects to improve the levels of flood protection in urbanized areas.		X		X
2. Increase stormwater retention and percolation	X		X	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

through the dry summer months. These impacts are discussed only in the context of construction activities and not in terms of a possible prolonged and large-scale dewatering of the area.

COMMENTS CONCERNING RESIDENTIAL SYSTEM LINKAGE TO THE AGRICULTURAL SYSTEM

V.P.-6 The RRDEIR states that the looped water main distribution system for the domestic supply "will be [illegible] *irrigation water supply and storage system*." The WRAC subcommittee requests further information on the accuracy of this statement, as it is possible that physical connections between domestic and agricultural systems will remain in place but would be unused. Based on the answer to the question, the WRAC subcommittee would like to see information on any foreseeable situation where cross connections would be used. For example, would or could irrigation well water be diverted to domestic use if unexpected production losses were experienced in the domestic side? If the agricultural and domestic water supply was to be controlled by a single entity, would cross-connection be in the interests of all parties? Does California Water Code Section 106 that states that residential use is a higher use than agricultural use come into effect?

COMMENTS CONCERNING ESTIMATIONS OF AGRICULTURAL WATER DEMAND

V.P.-6 discusses existing water use estimations in agricultural operations. The RRDEIR uses the 208 af pumped in 2011 as the basis for describing both existing and projected demand (see also Table V.P.-1). The basis of this number, as given by Cleath and Associates, cannot be verified as supportive documentation is not provided, such as well production logs, and is referenced only as an email communication (Appendix H-2, p.2).

The WRAC subcommittee requests that better documentation be provided in defense of this low irrigation application rate. This is especially important as 2011 was a heavy rainfall year (see comments on V.P.-3 above), and thus irrigation would be less than normal.

The subcommittee offers evidence from SLO County records that the use of 2011 irrigation data is misleading. Using the data from the Nipomo Mehlschau #38 site, and using the 2010-2011 water year as the basis for establishing spring and summer water conditions for 2011, the precipitation was 28.95 inches. As the average water year precipitation for the site between 1920 and 2012 is 16.75 inches, it is evident that irrigation amounts would have been much reduced from average requirements. The other two years for which irrigation data is ostensibly available were given as 1994 and 2003, but the data is not provided or apparently used and the preceding water years 1993-1994 and 2002-2003 yield 13.37 inches and 16.98 inches.

The subcommittee supports the use of irrigation values based on the Master Water Plan, minus allocations for frost protection. The RRDEIR notes the low Master Water Plan value of 0.7 AFY/A would be reduced to 0.45 AFY/A (Appendix H2, p.7) with frost

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jim Toomey Agency/ Community: District 4

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	High	Low
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.				
2. Develop a SLO IRWMP Project for Round 3.				
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers				
4. Maintain collaborative efforts between basin and watershed management groups				
5.				
6.				
7.				

Appendix H1, figure 18, shows that F&T 1 dropped 40 ft. in a decade, FV dropped 40 ft. in 20 years, F&T 2 dropped 80 ft. in 10 years, and FV 3 about 10 ft. in 10 years. This suggests that an overdraft condition already exists in the area, that the existing production for the vineyard is unsustainable in the long term, damaging to Los Berros Creek ecosystems, and reducing recharge to the Arroyo Grande Subarea aquifers.

The RRDEIR fails to either interpret or establish the history of long term storage changes with either the history of agricultural well water extraction at Laetitia or with the flow history of Los Berros Creek, although much of the data appears to be present in the document and its appendices. The FEIR should examine the thin evidence on water storage changes in terms of future projections of water levels and impacts to Los Berros Creek.

The 1968-2001 flow data is processed as monthly averages in Appendix H1 Figure 5. This does seem to show a significant decrease in January average flow in Los Berros Creek when years 1981-2001 are averaged, compared to the 1968-2001 average which is weighted toward older data. January flow dropped by a third, suggesting a possible deficit in underflow storage has developed through the summer and fall months. This would detract from surface flow until underflow capacity was reached.

(c) Insufficient r Missing Information Concerning Los Berros Creek Flows

The RRDEIR states that the County has stream gauge data: "*for the period from 1978 to March 2011. However, no gauging data for Los Berros Creek are available for the period from 2002 to 2005.*" There is a question as to why 2006-2011 data is not presented along with the analysis of the 1968-2001 data in Appendix H1 Figure 5.

(3) Cumulative Effects On Steelhead Trout And Red-Legged Frog Habitat Of Los Berros Creek

The National Marine Fisheries Service has designated Los Berros Creek as steelhead Critical Habitat in the Reiem Bay Hydrologic Sub-unit 3310 and the Oceano Hydrologic Sub Area 331031. Impact mitigations listed in Chapter 4 of the RRDEIR as Bio/mm-1 through Bio/mm-12 and WAT/mm-1 through WAT/mm-15 say nothing about increasing mean daily flows in the creek.

As steelhead are present in the creek (V.E.-15) the RRDEIR should discuss the serious potential that federal and state agencies may impose a minimum daily flow requirement to conserve the endangered species habitat. A habitat plan could require pumping be reduced or even terminated if shown to be directly or indirectly dewatering the creek.

The RRDEIR fails to relate minimum allowable flows for the success of steelhead in Los Berros Creek to the probable impacts of increased well pumping affecting the creek.

Most of what has been said above for steelhead can be repeated for red-legged frog. The possibility of additional water demand for the endangered frog habitat should be addressed in the RDEIR. The RDEIR discusses mitigation of impacts associated with the red-legged frog habitat including the preservation of ponds and wetlands especially

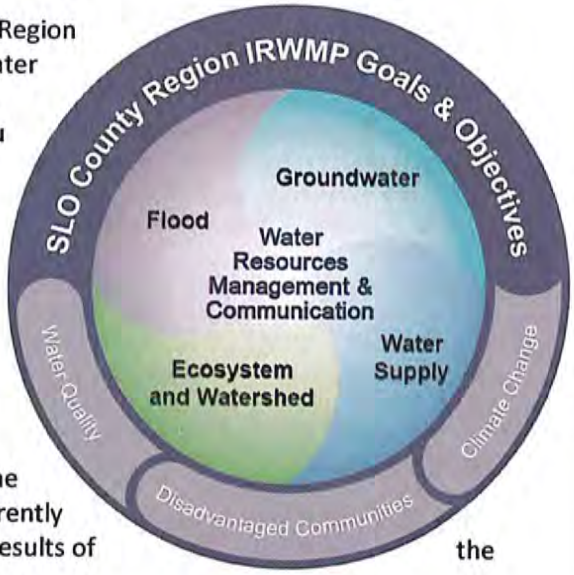
4

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of public workshops scheduled on the

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Bill Petrick Agency/ Community: Nipomo

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies	☐	☐	☐	☐
2. Study the impacts of sea level rise on coastal community water supplies.	☐	☒	☒	☐
3. Develop supplemental water supplies	☒	☐	☐	☒
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	☐	☒	☒	☐
5. Investigate options for optimizing use of local surface water storage	☒	☐	☒	☐
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	☒	☐	☒	☐
7. Evaluate potential for enhanced rainfall	☐	☒	☐	☒

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☒	☐
9. Implementation of coordinated regional conservation programs	☒	☐	☒	☐
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Bill Petrick Agency/ Community: Nipomo

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	☒	☐	☒	☐
2. Develop an inventory of diversions from surface water bodies	☐	☒	☒	☐
3. Install stream gauges on key regional creeks	☐	☒	☐	☒
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Bill Petrick Agency/ Community: Nipomo

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	X			X
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	X			X
3. Develop management tools (conceptual and groundwater flow models)	X		X	
4. Uniform groundwater monitoring program for the South County groundwater basins	X		X	
5. Uniform metering and reporting for all groundwater pumping in the South County	X		X	
6. ~~Increased groundwater monitoring (focused on storage)~~				
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	X		X	
8. Investigate and quantify subsurface flows between the SMGB management areas See # 3		X		X
9. Investigate and quantify available storage and reliable yield See # 3		X		X

South County Sub-Region **Groundwater Monitoring and Management Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☒	☐	☒	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Bill Petrick Agency/ Community: Nipomo

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	X			X
2. Increase stormwater retention and percolation	X		X	
3. Encourage upstream erosion controls	X		X	
4.				
5.				
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7.				
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9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Bill Petrick Agency/ Community: Nipomo

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
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South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	☒	☐	☒	☐
4. Maintain collaborative efforts between basin and watershed management groups	☒	☐	☒	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

Space for Additional Notes and Comments

[See separate sheet (e-mail)]

Water Supply Subregion Priorities:

Ecosystem and Watershed Subregion Priorities:

DUE - 7-31-13

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

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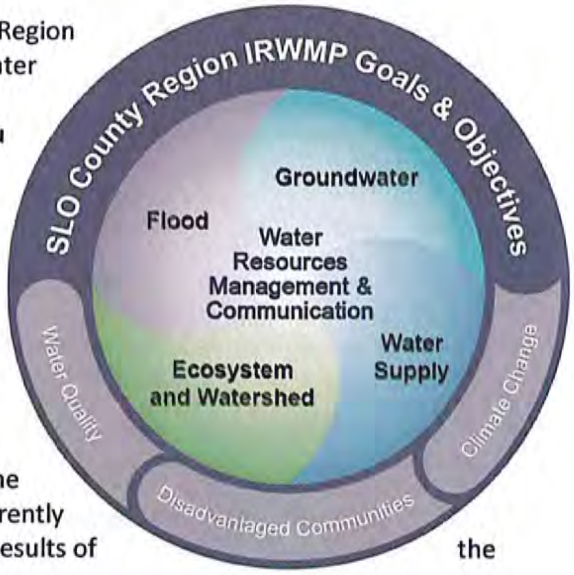

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SOUTH COUNTY
SUB-REGION PRIORITIES

Name: GARY KOBARA

Agency/ Community: AGRICULTURAL ~~ZONE~~ 1-14

WATER SUPPLY GOAL

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South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies	☐	☐	☐	☐
2. Study the impacts of sea level rise on coastal community water supplies.	☐	☒	☐	☒
3. Develop supplemental water supplies	☒	☐	☒	☐
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	☒	☐	☐	☒
5. Investigate options for optimizing use of local surface water storage	☒	☐	☒	☐
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	☐	☒	☐	☒
7. Evaluate potential for enhanced rainfall	☐	☒	☐	☒

SAME

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☐	☒	☐	☒
9. Implementation of coordinated regional conservation programs	☐	☐	☐	☐
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: GARY KOSAKA Agency/ Community: AGRICULTURE

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
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4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

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South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	☐	☒	☒	☐
2. Develop an inventory of diversions from surface water bodies	☒	☐	☒	☐
3. Install stream gauges on key regional creeks	☐	☒	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: GARY KOBARA

Agency/ Community: AGRICULTURE

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

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2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☐
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☐	☒
3. Develop management tools (conceptual and groundwater flow models)	☐	☐	☐	☐
4. Uniform groundwater monitoring program for the South County groundwater basins	☐	☐	☐	☐
5. Uniform metering and reporting for all groundwater pumping in the South County	☐	☐	☐	☐
6. Increased groundwater monitoring (focused on storage)	☐	☐	☐	☐
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☐	☐	☐	☐
8. Investigate and quantify subsurface flows between the SMGB management areas	☐	☐	☐	☐
9. Investigate and quantify available storage and reliable yield	☐	☐	☐	☐

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☐	☐	☐	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☐	☐	☐	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Gary Kosarek

Agency/ Community: Zone 1 - 1A

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	X		X	
2. Increase stormwater retention and percolation	X		X	
3. EROSION CONTROL - UPSTREAM	X		X	
4.				
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SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

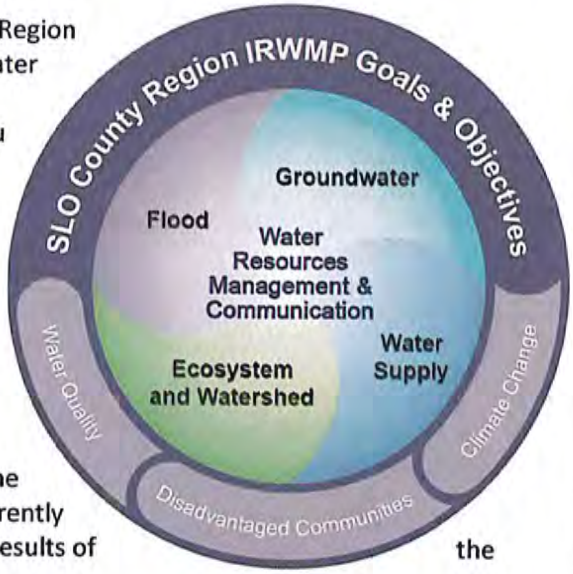
South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
2. Develop a SLO IRWMP Project for Round 3.	☐	☐	☐	☐
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	☐	☐	☐	☐
4. Maintain collaborative efforts between basin and watershed management groups	☒	☐	☒	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of public workshops scheduled on the:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Timothy Myer Agency/ Community: N. Pomo resident

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies	☐	☒	☒	☐
2. Study the impacts of sea level rise on coastal community water supplies.	☐	☒	☐	☒
3. Develop supplemental water supplies	☒	☐	☐	☒
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	☒	☐	☐	☒
5. Investigate options for optimizing use of local surface water storage	☐	☒	☐	☒
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	☐	☒	☐	☒
7. Evaluate potential for enhanced rainfall	☐	☒	☐	☒

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☐	☒
9. Implementation of coordinated regional conservation programs	☒	☐	☒	☐
10. Develop tertiary injection /recharge	☒	☐	☐	☒
11. of Aquifer from CWCSD, conoco phillips discharge)	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Timothy Myer Agency/ Community: N. Pomo / resident

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X			X
2. Develop an inventory of diversions from surface water bodies		X		X
3. Install stream gauges on key regional creeks		X		X
4.				
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☒
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☐	☒
3. Develop management tools (conceptual and groundwater flow models)	☐	☒	☐	☒
4. Uniform groundwater monitoring program for the South County groundwater basins	☒	☐	☐	☒
5. Uniform metering and reporting for all groundwater pumping in the South County	☒	☐	☐	☒
6. Increased groundwater monitoring (focused on storage)	☐	☐	☐	☐
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☐	☒	☐	☒
8. Investigate and quantify subsurface flows between the SMGB management areas	☐	☒	☐	☒
9. Investigate and quantify available storage and reliable yield	☐	☒	☒	☐

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☐	☒	☐	☒
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☒	☐	☐	☒
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Timothy Myer Agency/ Community: Nipomo Resident

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	☐	☒	☐	☒
2. Increase stormwater retention and percolation	☐	☒	☐	☒
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Timothy Myer Agency/ Community: resident / Nipomo

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
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South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
~~2. Develop a SLO IRWMP Project for Round 3.~~				
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X			X
5.				
6.				
7.				

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

Better methods for water extraction from the aquifer

Develop injection/recharge methodology for tertiary treated water (e.g. NCSD, Conoco Phillips, Trilogy)

Ecosystem and Watershed Subregion Priorities:

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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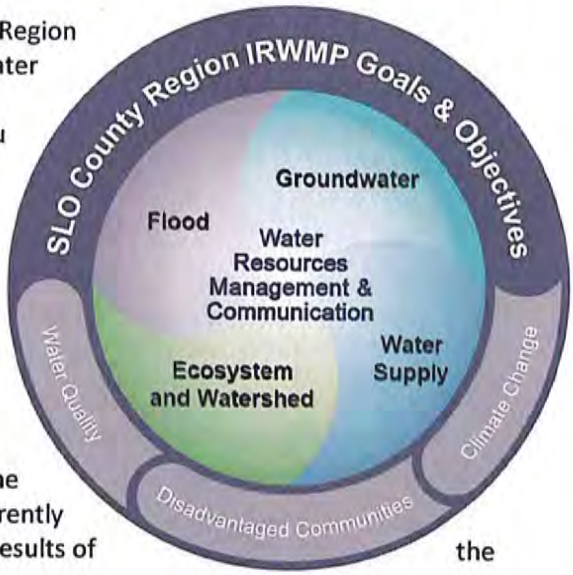

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SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Dan Heimel Agency/ Community: NCMA T6

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies	☐	☐	☐	☐
2. Study the impacts of sea level rise on coastal community water supplies.	☒	☐	☐	☒
3. Develop supplemental water supplies	☒	☐	☒	☐
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	☒	☐	☒	☐
5. Investigate options for optimizing use of local surface water storage	☒	☐	☒	☐
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	☒	☐	☒	☐
7. Evaluate potential for enhanced rainfall	☐	☒	☐	☒

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☒	☐
9. Implementation of coordinated regional conservation programs	☒	☐	☒	☐
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Dan Heinel Agency/ Community: NCMA TG

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X		X	
2. Develop an inventory of diversions from surface water bodies		X	X	
3. Install stream gauges on key regional creeks	X		X	
4.				
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Dan Heimel Agency/ Community: NCMA TG

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	X			X
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	X		X	
3. Develop management tools (conceptual and groundwater flow models)	X		X	
4. Uniform groundwater monitoring program for the South County groundwater basins	X	X	X	X
5. Uniform metering and reporting for all groundwater pumping in the South County	X		X	
6. Increased groundwater monitoring (focused on storage)		X	X	
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	X	X	X	
8. Investigate and quantify subsurface flows between the SMGB management areas	X		X	
9. Investigate and quantify available storage and reliable yield	X		X	

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☒	☐	☒	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
13. Duplicate	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Dan Heimel Agency/ Community: NCMA T6

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	X		X	
2. Increase stormwater retention and percolation	X		X	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Dan Heimel Agency/ Community: NCMA T6

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

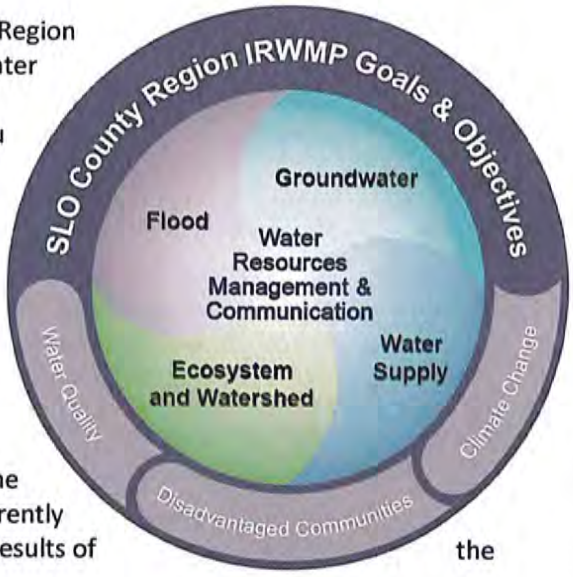
South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3.				
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X		X	
5.				
6.				
7.				

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: El Frieda Blood Agency/ Community: self

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies	X		X	
2. Study the impacts of sea level rise on coastal community water supplies.		X		X
3. Develop supplemental water supplies	X		X	
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)				
5. Investigate options for optimizing use of local surface water storage		X		X
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	X		X	
7. Evaluate potential for enhanced rainfall		X		X

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☒	☐
9. Implementation of coordinated regional conservation programs	☐	☒	☐	☒
10. Where does Price Canyon Oil Co.	☐	☐	☐	☐
11. get their H20 for fracking?	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	☐	☒	☐	☒
2. Develop an inventory of diversions from surface water bodies	☐	☒	☐	☒
3. Install stream gauges on key regional creeks	☐	☒	☐	☒
★ 4. H²O conservation needs to loosen	☐	☐	☐	☐
5. caps on single residences using	☐	☐	☐	☐
6. bath & shower H²O for outside	☐	☐	☐	☐
7. landscaping.	☐	☐	☐	☐
8.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☒
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☐	☒	☒	☐
3. Develop management tools (conceptual and groundwater flow models)	☐	☒	☒	☐
4. Uniform groundwater monitoring program for the South County groundwater basins	☐	☒	☒	☒
5. Uniform metering and reporting for all groundwater pumping in the South County	☐	☒	☒	☒
6. Increased groundwater monitoring (focused on storage)	☐	☒	☐	☒
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☐	☐	☐	☐
8. Investigate and quantify subsurface flows between the SMGB management areas	☐	☐	☐	☐
9. Investigate and quantify available storage and reliable yield	☐	☒	☒	☐

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☐	☒	☒	☒
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☐	☒	☐	☒
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☒	☐	☒	☐
13. Would it be possible to have senior homeowners assisted in their water conservation? (as the Gas & Co. do)	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	☐	☒	☐	☒
2. Increase stormwater retention and percolation	☐	☒	☒	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X		X	
2. Develop a SLO IRWMP Project for Round 3. ?		X		X
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers on going		X	X	X
4. Maintain collaborative efforts between basin and watershed management groups	X		X	
5. long & short term H²O goals need	X			
6. to precede all future permits.	X			
7. City Planning & City Council is plans	X			

Should be based on what H²O plans will allow

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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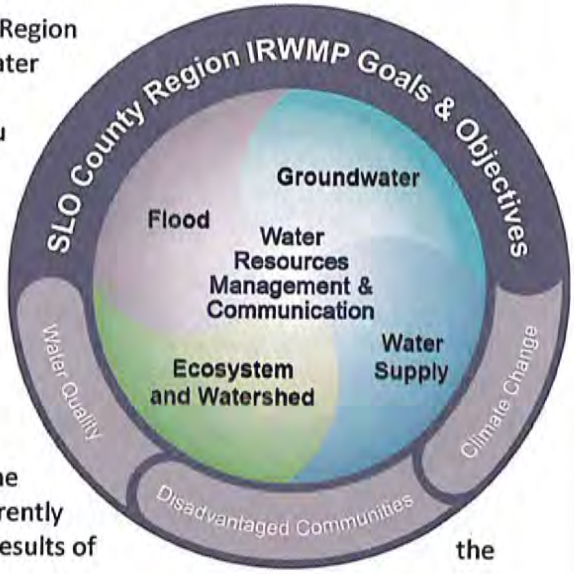

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SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Shelly Higginbotham Agency/ Community: City of Pismo Beach

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
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4. Support sustainable water quality and supply programs for agriculture.
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8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

Identical goals

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies	X		X	
2. Study the impacts of sea level rise on coastal community water supplies.	X	X		X
3. Develop supplemental water supplies	X		X	
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	X		X	
5. Investigate options for optimizing use of local surface water storage	X			X
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	X			X
7. Evaluate potential for enhanced rainfall		X		X

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☒	☐
9. Implementation of coordinated regional conservation programs	☐	☒	☐	☒
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Shelly Higginbotham Agency/ Community: City of Pismo Beach

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
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5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X		X	
2. Develop an inventory of diversions from surface water bodies				
3. Install stream gauges on key regional creeks				
4.				
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Shelly Higginbotham Agency/ Community: City of Pismo Beach

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☒	☐
3. Develop management tools (conceptual and groundwater flow models)	☐	☒	☐	☒
4. Uniform groundwater monitoring program for the South County groundwater basins	☒	☐	☒	☐
5. Uniform metering and reporting for all groundwater pumping in the South County	☐	☒	☐	☒
6. Increased groundwater monitoring (focused on storage)	☐	☒	☐	☐
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☐	☒	☐	☒
8. Investigate and quantify subsurface flows between the SMGB management areas	☐	☐	☐	☐
9. Investigate and quantify available storage and reliable yield	☒	☐	☒	☐

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins (these are in place?)	☐	☒	☐	☒
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☐	☐	☐	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Shelly Higginbotham Agency/ Community: City of Pismo Beach

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	☐	☐	☐	☐
2. Increase stormwater retention and percolation	☐	☐	☐	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Shelly Higginbotham Agency/ Community: City of Pismo Beach

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☒	☐	☒	☐
2. Develop a SLO IRWMP Project for Round 3.	☒	☐	☒	☐
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	☒	☐	☒	☐
4. Maintain collaborative efforts between basin and watershed management groups	☒	☐	☐	☒
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

Water Resources Management Subregion Priorities:

Finish that Habitat Conservation Plan in Zone 3, get it approved and stop spending resources on this — Then we can prioritize in our subregion ——

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☐	☐	☐	☐
9. Implementation of coordinated regional conservation programs	☐	☐	☐	☐
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

Evaluate/Investigate vs. doing - improving diversification

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jennifer Blackburn Agency/ Community: OCSD

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Ecosystem and Watershed Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X			X
2. Develop an inventory of diversions from surface water bodies		X	X	
3. Install stream gauges on key regional creeks	X		X	
4.				
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jennifer Blackburn Agency/ Community: OCSD

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☒	☐
3. Develop management tools (conceptual and groundwater flow models)	☒	☐	☒	☐
4. Uniform groundwater monitoring program for the South County groundwater basins	☒	☐	☐	☐
5. Uniform metering and reporting for all groundwater pumping in the South County	☐	☐	☐	☐
6. Increased groundwater monitoring (focused on storage)	☐	☐	☐	☐
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☐	☐	☐	☐
8. Investigate and quantify subsurface flows between the SMGB management areas	☒	☒	☐	☐
9. Investigate and quantify available storage and reliable yield	☐	☒	☐	☒

maybe part of characteriz

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☐	☐	☐	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☐	☐	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jen Blackburn Agency/ Community: OCSD

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	X			X
2. Increase stormwater retention and percolation				
3. Erosion control upstream AG Creek	X			
4.				
5.				
6.				
7.				
8.				
9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Resources Management and Communications Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☐	☐	☐
2. Develop a SLO IRWMP Project for Round 3.	☐	☐	☐	☐
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	☐	☐	☐	☐
4. Maintain collaborative efforts between basin and watershed management groups	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

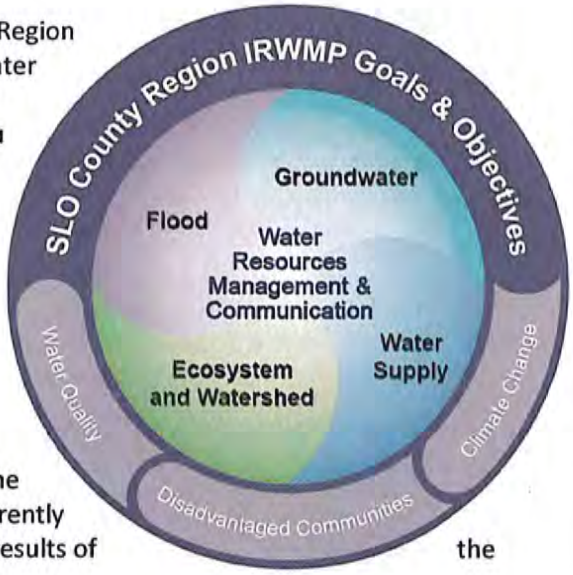
I actually didn't get an email re: this email, except from RCD. But I did the time before... strange!

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Caren Ray Agency/ Community: AG City Council

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Seek agricultural and urban supplemental water supplies Specifically addressing these two subgroups	X		X	
2. Study the impacts of sea level rise on coastal community water supplies.		X		X
3. Develop supplemental water supplies including all users	X		X	
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	X		X	
5. Investigate options for optimizing use of local surface water storage		X	X	
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	X			X
7. Evaluate potential for enhanced rainfall I would like to see this removed from the list (from the S. County sub-region)		X		X

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☒	☐
9. Implementation of coordinated regional conservation programs	☒	☐	☒	☐
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Caren Ray Agency/ Community: AG City Council

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X		X	
2. Develop an inventory of diversions from surface water bodies		X		X
3. Install stream gauges on key regional creeks	X			X
4.				
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Caren Ray Agency/ Community: AG City Council

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility. Same as #12	☐	☒	☐	☒
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☒	☐
3. Develop management tools (conceptual and groundwater flow models)	☒	☐	☐	☒
4. Uniform groundwater monitoring program for the South County groundwater basins	☒	☐	☒	☐
5. Uniform metering and reporting for all groundwater pumping in the South County	☒	☐	☒	☐
6. Increased groundwater monitoring (focused on storage)	☐	☒	☐	☒
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas	☒	☐	☒	☐
8. Investigate and quantify subsurface flows between the SMGB management areas	☒	☐	☒	☒
9. Investigate and quantify available storage and reliable yield	☒	☐	☒	☐

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☒	☐	☐	☒
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☒
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Caren Ray Agency/ Community: AG City Council

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	X		X	
2. Increase stormwater retention and percolation	X			X
3. Upstream erosion control & sediment capture		X		X
4.				
5.				
6.				
7.				
8.				
9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Caren Ray Agency/ Community: AG City Council

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X			X
2. Develop a SLO IRWMP Project for Round 3. (implementation phrase, not planning phrase)	X			X
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X			X
5.				
6.				
7.				

SOUTH COUNTY – (a subregion – 1 out of 3)
SUB-REGION PRIORITIES

2002 started

July 12, 2013

holistic approach – to get comm's together.

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

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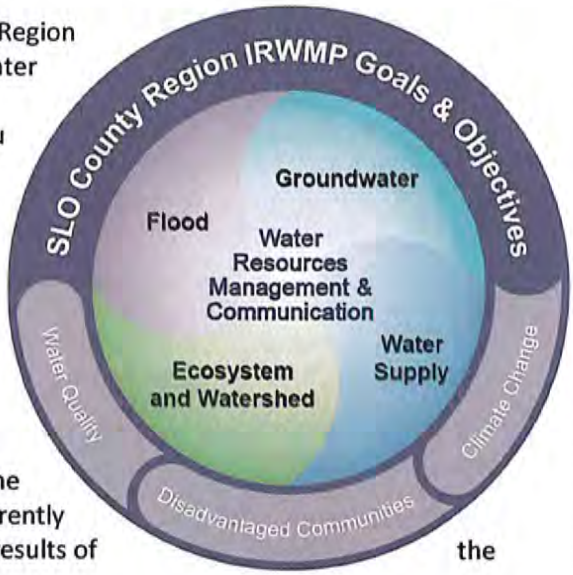

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The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

eligible for grant $
22 agencies involved -
State adopts their plan 6/20/14 to state to apply for grant funding.

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Lynn Compton Agency/ Community: Nipomo

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. ~~Seek agricultural and urban supplemental water supplies~~	X		X	
2. Study the impacts of sea level rise on coastal community water supplies. - It isn't rising to any appreciable deg.		X		X
3. Develop supplemental water supplies	X		X	
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)		X		X
5. Investigate options for optimizing use of local surface water storage		X		X
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	X		X	
7. Evaluate potential for enhanced rainfall		X		X

Not important!

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☐	☒	☐	☒
9. Implementation of coordinated regional conservation programs	☐	☒	☐	☒
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Lynn Compton Agency/ Community: Nipomo

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	☐	☒	☐	☐
2. Develop an inventory of diversions from surface water bodies	☐	☒	☐	☐
3. Install stream gauges on key regional creeks	☐	☒	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

not near or long term

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Lynn Compton Agency/ Community: Nipomo

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☒
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☒	☐	☒
3. Develop management tools (conceptual and groundwater flow models)	☒	☐	☒	☐
4. Uniform groundwater monitoring program for the South County groundwater basins	☒	☐	☒	☐
5. Uniform metering and reporting for all groundwater pumping in the South County Monitor everyone	☐	☒	☐	☒
6. Increased groundwater monitoring (focused on storage)	☐	☒	☐	☒
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas monitoring	☐	☒	☐	☒
8. Investigate and quantify subsurface flows between the SMGB management areas Sm Gd H_2O	☐	☒	☐	☒
9. Investigate and quantify available storage and reliable yield	☐	☒	☐	☒

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☐	☒	☐	☒
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☐	☒	☐	☒
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☐	☒
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Lynn Compton Agency/ Community: Nipomo

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Flood Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	☐	☒	☐	☐
2. Increase stormwater retention and percolation	☐	☒	☐	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Lynn Compton Agency/ Community: Nipomo

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

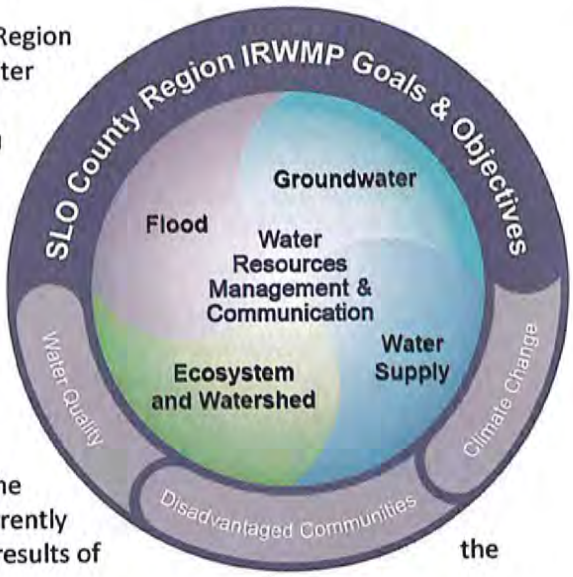
South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops. Not aware of meeting dates, etc.	X		X	X
2. Develop a SLO IRWMP Project for Round 3. Prop 84	X		X	
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers		X		X
4. Maintain collaborative efforts between basin and watershed management groups		X		X
5.				
6.				
7.				

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

Dear San Luis Obispo County IRWM Region Interested Stakeholder:

This packet contains five worksheets to assist in identifying Sub-Region Priorities for each of the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Goals and Objectives. Please take a moment to note the heading of each page to make sure that you have the worksheets tailored for your Sub-Region.



A **Sub-Region Priority** reflects the needs of the Sub-Region related to its respective regional Goals and Objectives. Each page of this packet is structured to first familiarize you with the adopted Goals and Objectives, and is separated by each Goal (or water resources category): Water Supply, Ecosystem and Watershed, Groundwater Monitoring and Management, Flood Management, and Water Resources Management and Communication. Below the Goal's Objectives is an initial list of the Sub-Region Priorities. Please note that Sub-Region Priorities currently listed can be added to or deleted from, pending your input and results of the public workshops scheduled on:

Join us at the IRWM Sub-Region Public Workshop: Tuesday, July 23, 1:00 pm - 3:00 pm, City of Pismo Beach Council Chambers, 760 Mattie Road, Pismo Beach

How You Can Use the Worksheet to Share Ideas:

- In the table space below the initial list of Sub-Region Priorities, please list additional critical ideas, concepts, projects, etc. to your Sub-Region, if needed. These should reflect your Sub-Region's most critical priorities and should be directly related to the IRWM Goals and Objectives.

- To the right of each Sub-Region Priority, please identify where you would place the Sub-Region Priority in terms of its being a **low or high priority** (i.e. how critical is the project or concept?), and whether the Sub-Region Priority can be **achieved over a short term period**, or would it require a **long term period** to achieve (i.e. can it realistically be implemented within five years or will it take longer?).

If you have any questions or want to submit written responses/comments in advance of the workshop, please email Carolyn Berg at cberg@co.slo.ca.us. Thank you very much for your participation and input!

What's IRWM?

Integrated Regional Water Management (IRWM) is a **collaborative** effort to manage all aspects of **water resources** in a region. IRWM **crosses jurisdictional, watershed, and political boundaries**; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through **mutually beneficial solutions.**

The San Luis Obispo County IRWM program promotes implementation of IRWM strategies to ensure sustainable water uses, reliable water supplies, better water quality, enhanced groundwater reliability, environmental stewardship, drought preparedness, increased watershed awareness, and more!

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Jill Densmore Agency/ Community: USGS / Nipomo

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
~~1. Seek agricultural and urban supplemental water supplies~~	☐	☐	☐	☐
2. Study the impacts of sea level rise on coastal community water supplies.	☐	☒	☐	☒
3. Develop supplemental water supplies for South County	☒	☐	☒	☐
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	☒	☐	☐	☒
5. Investigate options for optimizing use of local surface water storage How?	☐	☒	☐	☒
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	☐	☐	☐	☐
7. Evaluate potential for enhanced rainfall Silver iodide	☐	☒	☐	☒

South County Sub-Region **Water Supply Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies Same as Supplemental Sources	☒	☐	☒	☐
9. Implementation of coordinated regional conservation programs	☒	☐	☐	☒
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	☐	☒	☐	☒
2. Develop an inventory of diversions from surface water bodies	☒	☐	☒	☐
3. Install stream gauges on key regional creeks	☒	☐	☒	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	☐	☒	☒	☐
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	☒	☐	☒	☐
3. Develop management tools (conceptual and groundwater flow models) / quantifying subsurface flow, storage, yield	☐	☐	☐	☐
4. Uniform groundwater monitoring program for the South County groundwater basins / improve data collection	☒	☐	☒	☐
5. Uniform metering and reporting for all groundwater pumping in the South County	☐	☐	☐	☐
~~6. Increased groundwater monitoring (focused on storage)~~	☐	☐	☐	☐
~~7. Install additional dedicated monitoring wells including down hole transducers in high priority areas~~	☐	☐	☐	☐
8. Investigate and quantify subsurface flows between the SMGB management areas	☐	☐	☐	☐
9. Investigate and quantify available storage and reliable yield	☐	☐	☐	☐

part of

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☐
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☒	☐	☐	☒
12. ~~Develop groundwater facilities or projects that increase operational and management flexibility.~~	☐	☐	☐	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

Same as 1

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Flood Management Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	☐	☒	☒	☐
2. Increase stormwater retention and percolation for improving/increasing water supply	☒	☐	☒	☐
3.	☐	☐	☐	☐
4.	☐	☐	☐	☐
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐
8.	☐	☐	☐	☐
9.	☐	☐	☐	☐
10.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	**High or Low Priority**		**Near or Long Term**	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	☐	☒	☒	☐
2. Develop a SLO IRWMP Project for Round 3. implimentation District	☒	☐	☒	☐
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	☒	☐	☒	☐
4. Maintain collaborative efforts between basin and watershed management groups	☒	☐	☐	☒
5.	☐	☐	☐	☐
6.	☐	☐	☐	☐
7.	☐	☐	☐	☐

Space for Additional Notes and Comments

Water Supply Subregion Priorities:

As water levels decline, it seems imperative to increase supply using supplimental H_2O.

Ecosystem and Watershed Subregion Priorities:

Groundwater Monitoring and Management Subregion Priorities:

Better monitoring needed
need to delineate salt water/freshwater interface

Flood Management Subregion Priorities:

SOUTH COUNTY
SUB-REGION PRIORITIES

July 12, 2013

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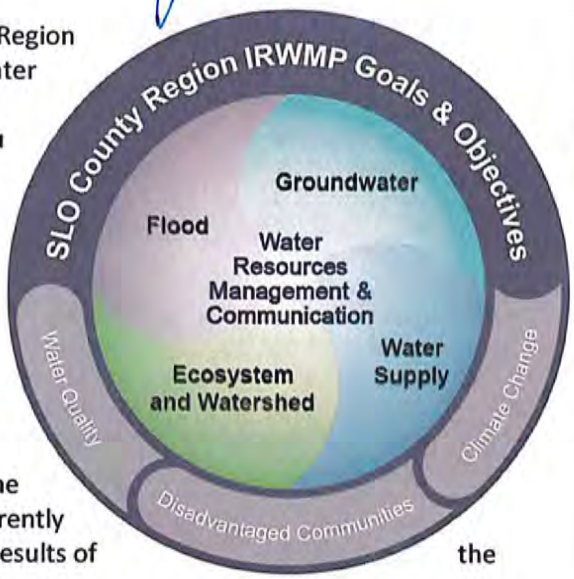

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SOUTH COUNTY
SUB-REGION PRIORITIES

Name: Teresa McClish Agency/ Community: City of Arroyo Grande

WATER SUPPLY GOAL

Objectives

1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.
3. Support sustainable potable water supply programs for rural residents.
4. Support sustainable water quality and supply programs for agriculture.
5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.
6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.
9. Diversify water supply sources, including the use of recycled and desalinized water.
10. Support watershed enhancement projects and programs to increase available water supplies to the Region.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Water Supply Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. ~~Seek agricultural and urban supplemental water supplies~~	☐	☐	☐	☐
2. Study the impacts of sea level rise on coastal community water supplies.	☒	☒	☒	☐
3. Develop supplemental water supplies	☒	☐	☐	☒
4. Evaluate potential for groundwater banking/conjunctive use programs and policies (locally or within SWP system)	☒	☐	☒	☐
5. Investigate options for optimizing use of local surface water storage	☒	☐	☒	☐
6. Maximize production and delivery capacity of the local water supply infrastructure (e.g. capacity improvements to Lopez WTP, pipeline pigging, etc.)	☒	☐	☒	☐
7. Evaluate potential for enhanced rainfall	☐	☒	☐	☒

South County Sub-Region **Water Supply Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
8. Improved diversification of water supply resources for the South County agencies	☒	☐	☐	☒
9. Implementation of coordinated regional conservation programs	☐	☒	☐	☒
10.	☐	☐	☐	☐
11.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

ECOSYSTEM AND WATERSHED GOAL

Objectives

1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms.
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.
4. Develop public involvement and stewardship programs for public lands and ecosystems.
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.
6. Reduce impacts of invasive species by removal and/ or other management/control methods to promote healthy ecosystems.
7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Ecosystem and Watershed Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Finalize/Implement AG Creek Habitat Conservation Plan	X			X
2. Develop an inventory of diversions from surface water bodies	X			X
3. Install stream gauges on key regional creeks	X		X	
4. sed. mutation control	X		X	
5.				
6.				
7.				
8.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

GROUNDWATER MONITORING AND MANAGEMENT GOAL

Objectives

1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.
5. Evaluate and implement groundwater recharge and/ or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop groundwater facilities or projects that increase operational and management flexibility.	X		X	
2. Avoid Seawater Intrusion (identify risk measures and management thresholds and develop coordinated response)	X		X	
3. Develop management tools (conceptual and groundwater flow models)	X		X	
4. Uniform groundwater monitoring program for the South County groundwater basins	X		X	
5. Uniform metering and reporting for all groundwater pumping in the South County		X		X
6. Increased groundwater monitoring (focused on storage)				
7. Install additional dedicated monitoring wells including down hole transducers in high priority areas		X		X
8. Investigate and quantify subsurface flows between the SMGB management areas	X		X	
9. Investigate and quantify available storage and reliable yield	X	X		X

South County Sub-Region Groundwater Monitoring and Management Priorities	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
10. Policies to maintain health of the South County's groundwater basins	☒	☐	☒	☒
11. Prepare Salt and Nutrient Management Plan(s) to cover the sub-region	☒	☐	☒	☐
12. Develop groundwater facilities or projects that increase operational and management flexibility.	☒	☐	☒	☐
13.	☐	☐	☐	☐
14.	☐	☐	☐	☐
15.	☐	☐	☐	☐
16.	☐	☐	☐	☐
17.	☐	☐	☐	☐

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

FLOOD MANAGEMENT GOAL

Objectives

1. Understand flood management needs per watershed or water planning area.
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.
5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Flood Management Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop projects to improve the levels of flood protection in urbanized areas.	X		X	
2. Increase stormwater retention and percolation	X			X
3. Encourage upstream control & sediment capture	X		X	
4.				
5.				
6.				
7.				
8.				
9.				
10.				

SOUTH COUNTY
SUB-REGION PRIORITIES

Name: _____ Agency/ Community: _____

WATER RESOURCES MANAGEMENT AND COMMUNICATIONS GOAL

Objectives

1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.
5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.

Please place an "X" to provide the Priorities you think are high or low, and near-term or long-term.

South County Sub-Region **Water Resources Management and Communications Priorities**	High or Low Priority		Near or Long Term	
	High	Low	Near	Long
1. Develop methods to reach out to community on local water-related information and dates for subregion meetings and workshops.	X			X
2. Develop a SLO IRWMP Project for Round 3.	X		X	
3. Improve collaboration and data sharing between urban, agricultural, and rural pumpers	X		X	
4. Maintain collaborative efforts between basin and watershed management groups	X		X	
5.				
6.				
7.				

Appendix E.

Not Used

Appendix F.

Resource Management Strategy Screening and Definition Packet

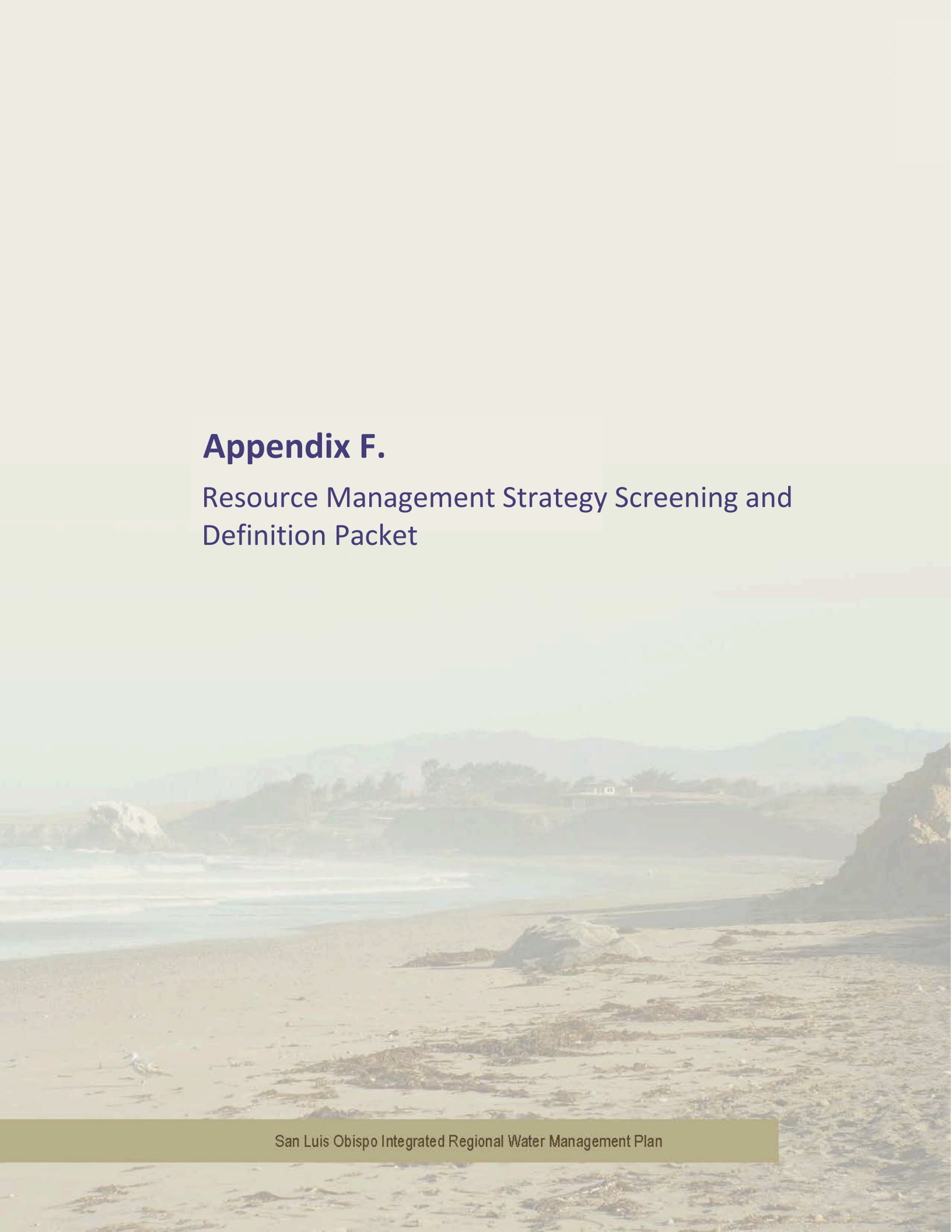


Table of Contents

Table of Contents 1

Statewide Management strategies to Increase Water Supply Include: 12

Conjunctive Management and Groundwater Storage 12

Desalination 17

Municipal Recycled Water 21

Surface Storage – Regional, Local, and CALFED 26

Statewide Management strategies to Improve Water Quality Include: 30

Drinking Water Treatment and Distribution 30

Matching Water Quality to Use 34

Pollution Prevention 38

Salt and Salinity Management 42

Urban Runoff Management 46

Statewide Management Strategies to Practice Resources Stewardship 47

Agricultural Land Stewardship 47

Ecosystem Restoration 49

Forest Management 53

Land Use Planning and Management 54

Recharge Area Protection 57

Sediment Management 58

Watershed Management 59

Statewide Management Strategies to Improve Flood Management 61

Flood Management 61

Statewide Management Strategies to Reduce Water Demand 65

Agricultural Water Use Efficiency 65

Urban Water Use Efficiency 69

Statewide Management Strategies to Improve Operational Efficiency and Transfers 73

DRAFT

Conveyance – Delta 73
Conveyance – Regional/Local 75
System Reoperation 77
Water Transfers 79

Figures

[Add list here]

Tables

[Add list here]

Statewide Management Objective: Increase Water Supply

June 7, 2013

Dear Stakeholder:

This packet is for your use in thinking about Resource Management Strategies (RMSs) and how they are used in developing project/program ideas. Each project/program considered for being included in the San Luis Obispo (SLO) Integrated Regional Water Management (IRWM) Plan has to satisfy the IRWM Plan Objectives adopted as draft by the Regional Water Management Group (RWMG) on June 5, 2013.

A RMS is defined by the California Department of Water Resources (CDWR) as a project, program, or policy that local agencies can implement to manage water and related resources to meet their IRWM Plan objectives. As such, we need your recommendations on which RMSs are needed to achieve our IRWM Plan Objectives. This public process is summarized in the flowchart to the right. The table below is a summary of how each RMS satisfies multiple objectives, providing a scoring system on level of benefit.

Each RMS is briefly summarized with a set of definitions and screening criteria including its effects on climate change. The goal in this exercise is to end up with a set of RMSs that, when combined and pieced together in various ways, we can promote and show the best projects/programs to potentially succeed in gaining future implementation funding.

This packet of RMS information is asking you to consider how each RMS could succeed if implemented in your Sub-Region.

If you have any questions, please call Carolyn Berg at (805) 781-5536.

Thank you very much!

Scoring of how well RMSs Satisfy the IRWM Plan Objectives:

- **Ranking 1** is where objective partially satisfies RMS when integrated with other objectives, but the types and need for projects are not likely to be submitted for the SLO Region
- **Ranking 2** is where objective satisfies RMS but project types for the SLO Region are not likely to be selected
- **Ranking 3** is where objective satisfies RMS when integrated with preferred projects
- **Ranking 4** is where objective directly satisfies RMS but not at a 100% level
- **Ranking 5** is where objective directly satisfies RMS

Some of the state RMSs were combined in cases where a California region-wide (i.e., not specific to SLO) strategy did not apply for the SLO Region and IRWM Plan. RMSs crossed out reflect those strategies decided to not be relevant, or are already included in a similar strategy for the SLO Region.

Statewide Management Objective: Increase Water Supply

Goals and Objectives	Regional Management Strategies																							
	Increase Water Supply				Improve Water Quality						Practice Resources Stewardship								Demand Reduction		Operation Efficiency		
	Conjunctive Management and Groundwater Storage	Desalination	Municipal Recycled Water	Surface Storage – Regional, Local, and CALFED	Drinking Water Treatment and Distribution	~~Groundwater Remediation~~	Matching Water Quality to Use	Pollution Prevention	~~Salt and Salinity Management~~	~~Urban Runoff Management~~	~~Agricultural Land Stewardship~~	Ecosystem Restoration	~~Forest Management~~	Land Use Planning and Management	~~Recharge Area Protection~~	~~Sediment Management~~	Watershed Management	Flood Management	Agricultural Water Use Efficiency	Urban Water Use Efficiency	Conveyance (Regional and Local)	System Reoperation	Water Transfers
Water Supply																							
1. Maximize the accessibility to existing and supplemental water supplies in the SLO Region through the utilization of existing infrastructure and development of new infrastructure and agreements.	**4**		**3**																	**4**		**3**	
2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.	**4**		**3**												2	3				**4**		**3**	

Statewide Management Objective: Increase Water Supply

3. Support sustainable potable water supply programs for rural residents.			**5**	**3**											4	2						**5**	**3**
4. Support sustainable water quality and supply programs for agriculture.			**5**	**3**											5	2						**5**	**3**
5. Support projects aimed to improve existing public water systems to meet state and federal drinking water quality standards.	**5**			**3**												2				**5**			**3**
6. Develop and implement Water Management Plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.	**2**		**5**							5					3	2				**2**		**5**	
7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.	**3**														5	5				**3**			
8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.															2	2							
9. Diversify water supply sources, including the use of recycled and desalinized water.			**3**													2						**3**	
10. Support watershed enhancement projects and programs to increase available water supplies to the SLO Region.			**3**	**3**																		**3**	**3**

Statewide Management Objective: Increase Water Supply

Ecosystem and Watershed																							
1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.				**3**				**5**		5													**3**
2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms to protect water supplies.			**4**	**3**				**5**														**4**	**3**
3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.				**5**												2							**5**
4. Develop public involvement and stewardship programs for public lands and ecosystems.				**3**				**5**															**3**
5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.			**2**					**5**														**2**	
6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.																							

7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on SLO Region's watersheds and ecosystems.										4													
Groundwater Monitoring and Management Goal																							
1. Develop groundWater Management Plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.			**3**	**3**																		**3**	**3**
2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.				**3**																			**3**
3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.				**2**																			**2**
4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater																							

basins in the SLO Region where plausible.																							
5. Evaluate and implement groundwater recharge and/or banking programs or efforts to increase the conjunctive use opportunities within the SLO Region, where technically feasible and cost-effective.			**2**																			**2**	
6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.			**3**	**5**																		**3**	**5**
Flood Management Goal																							
1. Understand flood management needs per watershed or water planning area.														5									
2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.			**2**	**3**				**2**		5				5		3						**2**	**3**
3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.								**3**		5				5									
4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.				**2**				**3**						5									**2**

5. Develop and implement flood management and water storage projects that provide multiple benefits such as public safety, water supply, habitat protection, recreation, agriculture, and economic development.								**2**						5									
6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.			**2**	**2**				**3**						5								**2**	**2**
7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.														5									
Water Resources Management and Communications																							
1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.				**2**																			**2**
2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.																							
3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with				**2**						3					2	3							**2**

governance bodies, and partnering with cities, community services districts and other water purveyors when possible.																							
4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.										5					4	1							
5. Support efforts by the state, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.				**2**											2	4							**2**
6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.															3	3							
7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.				**3**						2					2	4							**3**
8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.				**3**				**2**		2					5	5							**3**

STATEWIDE MANAGEMENT STRATEGIES TO INCREASE WATER SUPPLY INCLUDE:

- Conjunctive Management and Groundwater Storage
- Desalination
- Municipal Recycled Water
- Surface Storage – Regional, Local, and CALFED

Conjunctive Management and Groundwater Storage

Definitions:

Groundwater development is the use of wells to economically extract water from a groundwater basin or aquifer systems for beneficial use. Ideally, the total amount of groundwater extracted annually is balanced with the amount of water recharged naturally or through intentional groundwater recharge.

Groundwater storage and banking is the intentional recharge of surface water in the available and manageable groundwater basin storage space. Recharge can be through spreading ponds, injection wells, where surface water, in-lieu of groundwater pumping, leaving water in storage in the groundwater basin for subsequent extraction and use at a later time. Groundwater storage and banking includes active monitoring and accounting for all recharge and extraction operations.

Groundwater storage operations would use locally controlled groundwater basins and facilities to store and manage available surface water. Groundwater banking implies providing or subscribing to services for use of facilities and groundwater storage space not directly under control of the entity with surface water for storage. For example, Paso Groundwater Basin interests could build groundwater storage facilities in the basin to store surface water supplies, but also could provide groundwater banking services to others, thus creating a revenue stream and sharing of costs.

Conjunctive water management is the coordinated and combined use of surface water and groundwater to increase the overall water supply to a region and improve the reliability of that supply. Conjunctive use implies that there are some safe or sustainable yields from the groundwater

basin.

State RMS Definition of Conjunctive Management:

> *Conjunctive management or conjunctive use refers to the coordinated and planned use and management of both surface water and groundwater resources to maximize the availability and reliability of water supplies in a region to meet various management objectives. (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

The evaluation and development of groundwater storage and banking projects/programs aligns directly with objectives of the Groundwater Management Goal, and crosses over to multiple objectives in other goals. Groundwater storage would help to meet the goal to diversify the regional water supply portfolio and ensure a long-term, verifiable, reliable, and sustainable supply to meet current and future agricultural, urban, rural, and environmental demands. Groundwater banking and storage would help meet multiple objectives by:

- Helping to avoid impacts to existing users
- Providing a firm, verifiable, and sustainable supply
- Supporting protection of surface water rights by making full use of entitlements for groundwater banking purposes

Complexity

Groundwater storage and banking locally in the North County (Paso Groundwater Basin) and South County (Santa Maria Groundwater Basin) Sub-Regions would likely require integration with recycled water and desalination strategies. Legal, political, and technical issues remain to be addressed but no fatal flaws have been identified. Technical issues related to water quality, hydrogeology, and operations need to be further addressed.

Interregional groundwater storage and banking in the North County Sub-Region (Paso Groundwater Basin) can be through use of the state Water Project Pipeline using existing water entitlements, and through use of Nacimiento Reservoir entitlements, and construction of conveyance and treatment

facilities. Both are technically feasible but require further study and analysis of specific site conditions. There are more political and legal complexities when compared to locally controlled facilities or groundwater storage areas.

Resolve Conflicts

Groundwater banking and storage of excess surface water in wet years and wet months could provide a firm, verifiable, and sustainable supply for new users in lieu of extracting groundwater from the Paso Basin. Banked supplies can be apportioned between current users and new users; agriculture, urban, and rural. This would support land use agencies when making findings and determinations on available supplies and impacts to current users pursuant to state law SB610 and SB221. This will result in reducing the potential for local conflicts between existing groundwater users and the land use agencies; between current and future water users; and between the types of use.

Regional Benefits

Groundwater storage and banking would provide regional benefits to the Paso Groundwater Basin and Santa Maria Groundwater Basin users by increasing the quality and reliability of the groundwater supply, protecting the local water rights, and ensuring reasonable and beneficial use of both surface water and groundwater entitlements.

Timeliness

Groundwater banking and storage projects need to be further defined through a feasibility study and/or additional pilot and demonstration projects. Project alternatives are still being developed and compared, and a preferred alternative has not been selected. Further explorations, field work, or pilot and demonstration projects would fill data gaps, test and demonstrate the technologies and operational concepts, and support completion of alternatives evaluation and final design of full scale projects

Political Acceptability, Local and Regional

In general, there is support for groundwater storage and banking in the SLO Region. Such support is expected to increase with greater understanding and awareness of the need to protect indigenous groundwater and to perfect surface water rights. Ability to pay and willingness to pay, cost benefits

analysis, cost distribution and fiscal evaluation have not been fully determined and requires additional economic evaluation to gage acceptability and compare to other structural and non-structural alternatives.

Adapting to Climate Change

Groundwater banking and storage would allow the SLO Region to make maximum use of the surface water entitlements and improve the ability for the SLO Region to respond to variable climate conditions. Regardless of the long-term effects of climate change to SWP or Nacimiento entitlements, whether increase or decrease to the flows, groundwater banking would help the SLO Region respond to vulnerabilities, make maximum beneficial use of the current entitlements, and help meet IRWM Plan Objectives.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for additional groundwater development (e.g., increased agriculture or urban demands)?

How might these opportunities include groundwater storage and banking element?

Explain how well these opportunities fall within your Sub-Region where there is (or will be) an adopted Groundwater Management Plan?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- The number one priority for the RWMG should be to develop groundwater storage and banking facilities to capture and protect surface water rights.
- Develop Groundwater Management Plan elements to support groundwater storage and banking projects and meet requirements for state grant funding.
- Conduct needed feasibility studies and/or pilot and demonstration projects to obtain needed data, select a preferred groundwater banking alternative and develop final project designs and funding requirements.
- Seek state and federal grant funding to conduct the needed evaluations and pilot projects.

Additional Recommendations:

Desalination

Definitions:

Desalination comprises various water treatment processes for the removal of salt from water for beneficial use. Desalination is used to treat seawater as well as brackish groundwater (water with a salinity that exceeds normally acceptable standards for municipal, domestic, and irrigation uses, but less than that of seawater).

Desalination technologies typically include reverse osmosis (RO). This process can be used to remove salt as well as specific contaminants in water such as trihalomethane precursors, volatile organic carbons, nitrates, and pathogens.

Desalination uses typically include direct use as a drinking water supply, groundwater recharge with injection to halt sea water intrusion, groundwater recharge through recharge basins, or non-potable uses to supplement recycled water supplies.

State RMS Definition of Desalination:

> *Include desalination, where economically and environmentally appropriate, as an element of a balanced water supply portfolio, which also includes conservation and water recycling to the maximum extent practicable. (DWR, 2003)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Desalination of sea water or brackish groundwater could help to meet the Objective 9 of the Water Supply Goal to diversifying the regional water supply portfolio and ensuring a long-term, verifiable, reliable and sustainable supply to meet current and future agricultural, urban, and environmental demands. Desalination would help meet objectives by proving a new water source to avoid impacts to existing users.

- Helping to avoid impacts to existing users by providing a new supply
- Supporting disadvantaged and other communities in meeting wastewater disposal and permit requirements when coupled with as a regional strategy for use of this water and funding

facilities

- Matching water quality to appropriate uses and supplying treated wastewater to extend use of constrained surface water supplies
- Improving wastewater effluent discharge water quality to fresh water rivers and ocean
- Support meeting 20% conservation goals in the SLO Region

Complexity

Desalination technologies for brackish water are relatively well defined and relatively cost-effective as compared to other opportunities to develop new water supplies. Constraints to be overcome include: mitigation requirements to potential impacts related to concentrated effluent discharge; sea water intakes and the impact on marine life; and carbon footprint due to high energy use.

Resolve Conflicts

Desalination could reduce conflicts over existing water supplies by providing a firm supply for new users and projects in-lieu of increased groundwater use or use of constrained surface water supplies.

Regional Benefits

Desalination would provide regional benefits by increasing the supply and by providing water for economic development while protecting existing urban, agricultural, rural, and environmental uses.

Timeliness

Projects to desalinate brackish groundwater could be developed in the near- to mid-term since the local water purveyors and the County could work cooperatively with industry to develop and permit such projects.

Adding a groundwater recharge component as an end-use for desalinated water could slow project development and implementation, but an integrated project could be developed in phases over the mid- to long-term.

Desalination ocean intake structures and effluent discharge methods would likely require environmental review and a longer time period to design, permit, implement, and could encounter

significant regulatory compliance requirements.

Political Acceptability, Local and Regional

The method of financing and distribution of costs between existing and future customers needs to be determined. Ability to pay and willingness to pay for desalination has not been fully determined and requires additional economic evaluation.

Adapting to Climate Change

Desalination of brackish water sources would develop an untapped resource and improve the ability for the SLO Region to respond to variable climate conditions.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities for Desalination Development (e.g., increased agriculture or urban uses of water supplies)?

How might these opportunities gain political support and funding?

Statewide Management Objective: Increase Water Supply

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Desalination of ocean water or brackish groundwater is a near- to mid-term proposition and could be sustainable when integrated with groundwater recharge project elements.
- Phased projects should be undertaken to pilot and take advantage of current technologies.
- Monitoring and reporting elements should be undertaken to determine the feasibility of large scale water supply and groundwater recharge projects.
- Federal or state funding opportunities for development of pilot projects should be pursued if local funding match can be developed.
- Local government and water purveyors should coordinate and adopt appropriate policies to allow for and promote development of desalination projects.
- Consider and further evaluate economic and political feasibility for including desalinated water as a source of direct groundwater recharge.
- Cooperative public/private partnerships should be investigated for purposes of creating a new water supply for non-agricultural water users using desalination technologies.
- Economic incentives and pricing would need to be worked out to finalize a business model, and additional economic evaluations are recommended.

Additional Recommendations:

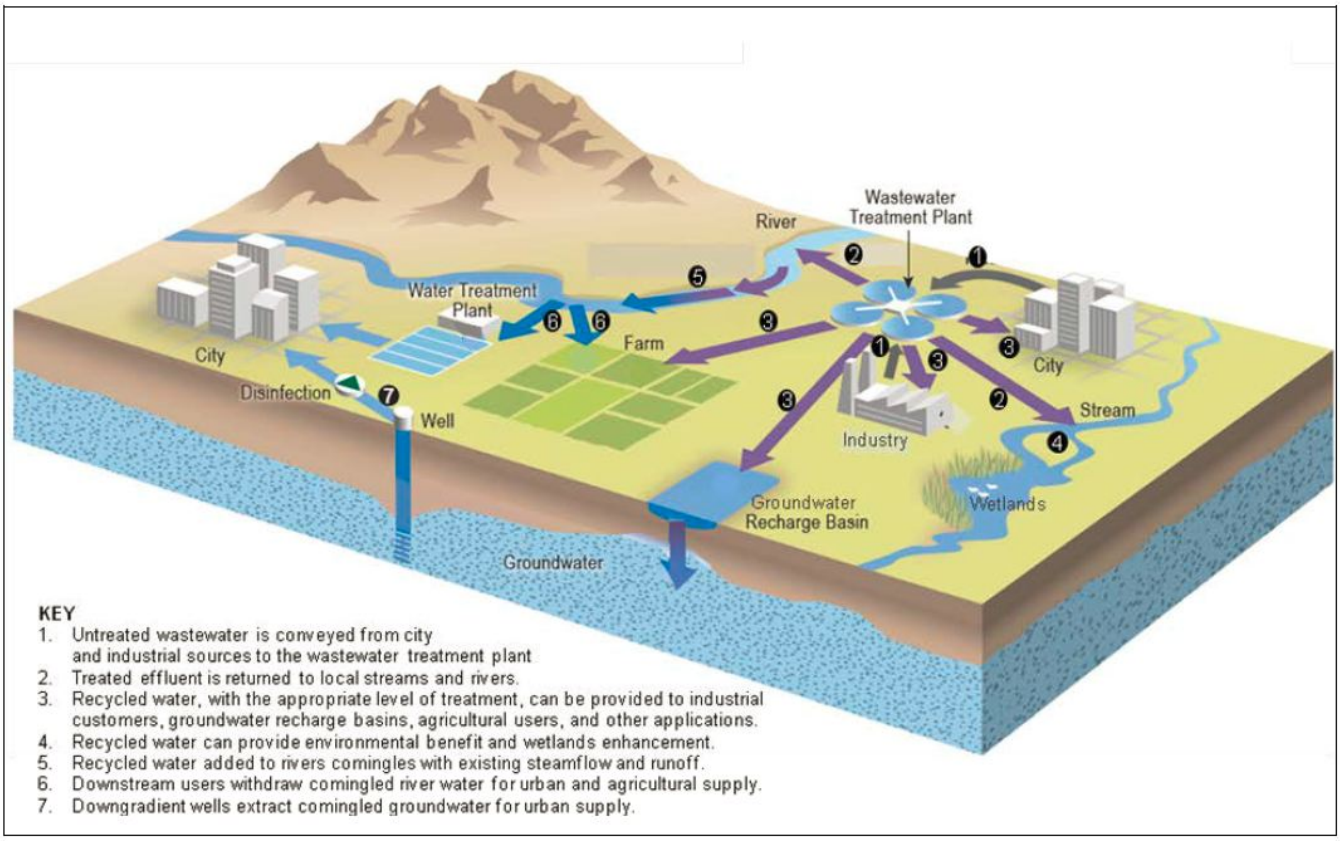
Municipal Recycled Water

Definitions:

"**Recycled water**" and "**reclaimed water**" have the same meaning and can be used interchangeably.

Recycled water originates from wastewater produced by city and industrial sources and conveyed to a regional wastewater treatment plant; from there it is treated and conveyed to uses, as illustrated in the figure below.

Recycled water typically replaces the need for potable drinking water supplies for outdoor irrigation in urbanized areas for uses such as schools, parks, and landscape corridors. The term, "purple pipe" system refers to the dedicated distribution system for recycled water or other high-quality non-potable water supplies (e.g., groundwater remediation).



Source: (DWR, 2013)

Statewide Management Objective: Increase Water Supply

State RMS Definition of Recycled Water:

> *…water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource (Wat. Code § 13050(n)). (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Recycled municipal wastewater would help to meet the goal to diversify the regional water supply portfolio and ensure a long-term, verifiable, reliable and sustainable supply to meet current and future agricultural, urban and environmental demands. Recycled wastewater would help meet objectives by:

- Helping to avoid impacts to existing users by providing a new supply
- Supporting disadvantaged and other communities in meeting wastewater disposal and permit requirements when coupled with as a regional strategy for use of this water and funding facilities
- Matching water quality to appropriate uses and supplying treated wastewater to extend use of constrained surface water supplies
- Improving wastewater effluent discharge water quality to fresh water rivers and ocean
- Support meeting 20% conservation goals in the SLO Region

Complexity

Treatment technologies to recycle municipal wastewater are well established. Complexity would be related to integrating funding strategies for upgrading existing plants or developing regional wastewater facilities to recycle wastewater. There are some permitting issues that would need to be resolved to use as a non-potable water source for outdoor irrigation.

Resolve Conflicts

Recycling municipal wastewater would be relatively neutral. This practice would demonstrate the

regional commitment to making use of this resource. Recycling municipal wastewater could provide a firm, verifiable, and sustainable supply for new users in lieu of dependency on constrained groundwater and surface water supplies. This would support land use agencies when making findings and determinations on available supplies and impacts to current users pursuant to state law SB610. This would result in reducing the potential for local conflicts between water purveyors and land use agencies; between current and future water users; and between the types of use.

Regional Benefits

A regional strategy to reclaiming municipal wastewater could provide regional benefits by helping to meet the requirements to conserve 20% by 2020; increasing the reliability of the supply portfolio; recharging groundwater aquifers through in-lieu and direct recharge (i.e., the state is currently drafting new regulations allowing for use of recycled water as a direct groundwater recharge source of supply); and supporting economic development.

Timeliness

A number of potential recycled municipal wastewater facilities are currently in the planning and design stages [NEED Report on Recycled Water Assessment], and a number of projects are near or ready to proceed. Regional strategies and policies are needed to account for the conserved water and use of this source in lieu of groundwater or surface water. Development of regional plants to realize economies of scale and increase cost effectiveness will take more time.

Political Acceptability, Local and Regional

Upgrade to individual plants without subsidy by new water users would encounter political opposition due to increase in rates required to fund upgrades to existing plants. Regional plants could be resisted due to loss of control of individual facilities. Regional strategies for accounting for the conserved water also could face opposition. Grower resistance related to marketability of crops.

Adapting to Climate Change

Recycling municipal wastewater would help to adapt to climate change by secondary uses, and by providing flexibility in operations, and increase ability to respond to changing conditions.

Statewide Management Objective: Increase Water Supply

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities for additional recycled water development (e.g., new source of supply for non-consumptive agriculture crops or non-potable urban uses)?

How might these opportunities include a significant reduction in the current use of groundwater and surface water supplies?

Explain how well these opportunities apply to your Sub-Region (e.g., an existing regional wastewater treatment plant needing to state discharge requirement)?

Statewide Management Objective: Increase Water Supply

Additional Sub-Region Stakeholder Findings:

- Recycling all forecasted future municipal wastewater flows would only provide an estimated total of _____acre-feet per year, which is a little more than _____ of the future forecasted demand. If all the wastewater available was recycled, it would only provide a percentage of the future demand.
- Support current wastewater facility plant upgrades that propose recycling municipal water for use as part of meeting sustainable water supplies for new growth in urban and agriculture uses.
- Create partnerships and meet multiple IRWM Plan goals by using recycled wastewater for this purpose where cost effective and timely.
- Consider regional municipal water recycling projects to increase cost-effectiveness (economies of scale) of project development and operation, provide benefits to multiple parties, and improve opportunities to reuse the water (reduce cost of "purple pipe" system).
- Provide policy and financial incentives for public/private partnerships to construct municipal recycling facilities and for crediting the produced water to sponsoring entities (public/private) to allow for exchange of treated drinking water.
- Continue to evaluate the cost-effectiveness and political viability of regional municipal wastewater treatment facilities that include recycling wastewater as part of the mid- and long-term water management strategy.
- Continue to monitor the state's draft regulations for the use of recycled water for direct groundwater recharge through recharge basins and injection.

Additional Recommendations:

Surface Storage – Regional, Local, and CALFED

Definitions:

Surface storage is a strategy typically used to collect and store rainfall and stormwater runoff during the wet months of the year for later releases during the dry months of the year where the water is transferred to agencies with contracts (or water rights) specifying the discharge rate and maximum annual volume.

Both on- and off-stream storage refer to man-made surface storage for impounding water to achieve multiple benefits including: 1) water supply reliability against catastrophic events and droughts; 2) operational flexibility to meet peak summer water demands; 3) water quality improvement; 4) flood control; 5) hydropower; and 6) capturing excess flows.

Surface Storage operations typically allow for recreational boating and fishing throughout the year by maintaining a minimum storage that is carried over from one year to the next.

Environmental releases are often needed as mitigation of surface storage projects to maintain anadromous fish populations in downstream rivers.

State and federal surface water projects are a system of reservoirs located throughout California with major conveyance systems to provide water to agricultural and urban areas.

State RMS Definition of Surface Storage:

> *Surface storage is the term for the use of man-made, above-ground reservoirs to collect water for later release when needed….*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Surface storage aligns with many of the SLO Region IRWM Plan's Goals and Objectives because of the water supply, flood management, and groundwater recharge, and environmental and recreational values. Surface storage is a preferred alternative for creating new water, providing flood management, and securing additional supplies for drought protection and emergency failures in other supplies. Incidental benefits are recreation, groundwater recharge, and controlled river flows.

However, surface storage projects come at a high monetary and a high environmental cost.

The IRWM Plan Region currently makes use of four reservoirs: Salinas (Santa Margarita Lake), Whale Rock, Lopez Lake, and Nacimiento. All four benefit the management of water resources and play an important role in the IRWM region's water supplies, flood protection, and groundwater recharge.

Complexity

Implementing Surface Storage projects takes many years of planning and developing feasibility and environmental studies to support the project's construction. Local agencies are further constrained because of the resources to manage and complete such a complex project. Land acquisition and relocating roads and small communities takes time and money. More often, an existing dam is raised in elevation to provide additional storage if the upstream watershed captures the additional volume, or water is pumped (off-stream storage) into the reservoir from nearby canals. Lastly, legal, political, and technical issues are often difficult to overcome.

Resolve Conflicts

Similar to groundwater banking and storage, surface storage of excess surface water in wet years and wet months could provide a firm, verifiable, and sustainable supply for new users in lieu of extracting groundwater or finding unused water entitlements. Stored supplies can be apportioned between current users and new users; agriculture, urban, and rural. This would support land use agencies when making findings and determinations on available supplies and impacts to current users pursuant to state law SB610 and SB221. This will result in reducing the potential for local conflicts between existing users and the land use agencies; between current and future water users; and between the different types of land use.

Regional Benefits

Surface storage would provide regional benefits in providing in-lieu and direct recharge of the SLO Region's groundwater basins. Such a project will also protect the local water rights and ensure reasonable and beneficial use of both surface water and groundwater entitlements.

Timeliness

Implementing Surface Storage projects takes many years of planning, as does developing feasibility and environmental studies to support the project's construction. Time is often measured in decades

to bring a Surface Storage project from inception to completion, and fatal flaws can occur anywhere along the way.

Political Acceptability, Local and Regional

In general, Surface Storage projects in the SLO Region are considered to be too high in price as it relates to environmental impacts and impacts to the livelihood of lands to be inundated. Ability to pay and willingness to pay, and a typically low benefit-cost ratio analysis make large surface storage projects infeasible.

Adapting to Climate Change

Surface storage would allow the SLO Region to make maximum use of the surface water entitlements and improve the ability for the SLO Region to respond to variable climate conditions. Regardless of the long-term effects of climate change to SWP or Nacimiento entitlements, whether increase or decrease to the flows, additional storage will help respond to vulnerabilities, make maximum beneficial use of the current entitlements, and help meet IRWM Plan Objectives.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements (or attributes) of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for additional Surface Storage (e.g., increased agriculture or urban demands) projects?

Statewide Management Objective: Increase Water Supply

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Conduct a study on the North Coast Sub-Region and the South Coast Sub-Region using surface water storage in local watersheds for adapting to climate change.
- Evaluate the impacts of forecasted curtailments in SWP surface water and future plans by the state to build new storage reservoirs north of the Delta.
- Consider opportunities for off-stream reservoirs in the North County Sub-Region.

Additional Recommendations:

Statewide Management Objective: Improve Water Quality

STATEWIDE MANAGEMENT STRATEGIES TO IMPROVE WATER QUALITY INCLUDE:

- Drinking Water Treatment and Distribution
- Matching Water Quality to Use
- Pollution Prevention
- Salt and Salinity Management

Not Considered for Meeting SLO Region IRWM Plan Goals and Objectives:

- Urban Runoff Management

Drinking Water Treatment and Distribution

Definitions:

Drinking Water Treatment and Distribution requires that water treatment plant systems can treat raw water supplies to drinking water quality standards, and conveyance is sized to adequately serve and maintain the same high water quality for purposes of human consumption, outdoor irrigation, and at volumes and pressures for emergency fire flows.

Drinking Water Treatment facilities use a range of technologies to meet first and secondary water treatment standards.

Groundwater treatment often requires only chemical and filtration systems to remove naturally occurring constituents such as iron and manganese.

Surface water treatment requires conventional systems using flocculation, settling basins, and filtration.

State RMS Definition of a Public Water System:

> *…a system for the provision of water for human consumption, through pipes or other constructed conveyances, which has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days of the year (Health & Saf. Code, § 116275(h).). (DWR, 2013)*

Statewide Management Objective: Improve Water Quality

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

The SLO Region IRWM Plan has approximately 180 state-defined public water systems ranging from very small, serving a single complex or industry, to large, serving cities and communities. Each requires continuous monitoring for both available quantity and quality. Many of the Objectives of the Water Supply Goal are aligned with this RMS in some manner, as follows:

- Improves utilization and operations of existing conveyance systems
- Addresses water treatment and conveyance deficiencies
- Provides sustainable drinking water supplies to address communities, including disadvantaged communities (DACs)
- Supports improvements to existing public drinking water system to meet state and federal drinking water quality standards
- Implements portions of a community's Water Management Plan
- Integrates with system-wide conservation programs through operations and pricing

Complexity

Water treatment plant and conveyance system improvements are relatively straight forward. A needs and feasibility study are required as well as CEQA documentation and predesign to seek funding. Depending on the size of the water system, funding can come from various sources to supplement existing rate payers. System improvements for new growth can be financed and paid through development fee programs. System sizing for new development creates political and environmental complexities when compared to simply upgrading a failing water system supporting existing customers.

Resolve Conflicts

Feasibility studies and design reports for new or upgrading water treatment and conveyance facilities would support land use agencies when making findings and determinations on available supplies and

impacts to current users pursuant to state law SB610 and SB221. This will result in reducing the potential for local conflicts between existing users and the land use agencies; between current and future water users; and between the types of use.

Regional Benefits

When combined with other RMSs, the construction of new or upgraded water treatment and conveyance facilities increase the quality and reliability of both surface water and groundwater supplies, protecting the local water rights and ensuring reasonable and beneficial use of both surface water and groundwater entitlements.

Timeliness

IRWM Plan projects pertaining to water treatment and conveyance systems already exist throughout the SLO Region in various states within the planning and design process, with most awaiting some form of financial support. Prioritization in expediency should be given to DACs or other low income areas where drinking water quality is below primary state and federal drinking water standards.

Political Acceptability, Local and Regional

In general, there is support for most water treatment and conveyance facility projects in the SLO Region. Ability to pay and willingness to pay, and benefit-cost analyses are needed to fully gage the acceptability of the preferred alternative.

Adapting to Climate Change

Any improvement in the sustainability of drinking water supplies helps the SLO Region respond to climate change vulnerabilities by making maximum beneficial use of the current entitlements. Regionalization of water supply systems as an adaptation strategy also helps to counter the effects of climate change by adding distribution flexibility during periods of drought or flooding.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

Statewide Management Objective: Improve Water Quality

What are the opportunities (or needs) for water treatment and/or conveyance system improvements?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- The RWMG should identify and prioritize (identify critical needs) all communities with drinking water system deficiencies including the ability to meet fire flows and peak summer demands.
- Develop Water Management Plan elements to support water system improvements, promote regionalization of both treatment and conveyance systems, and meet requirements for state grant funding.
- Conduct needed feasibility and environmental studies to develop final project designs and funding requirements.
- Seek state and federal grant funding to support critical system improvements.

Additional Recommendations:

Matching Water Quality to Use

Definitions:

Matching Water Quality to Use is a strategy used to promote the idea of comparing the quality of the raw water supply with the intended use, and then bringing t.

One example is groundwater, which is considered to be the best and highest quality source of drinking water in the SLO Region; thereby making an allocation preference to urban, industrial and rural uses.

Fresh surface water, considered to be a clean source of supply, but of less quality than groundwater, could have an allocation preference to agricultural or environmental/aquatic uses.

For agricultural and instream uses, water quality matching is an integral part of water quality management because there is generally no treatment of these water supplies prior to their use.

State RMS Definition of Matching Water Quality to Drinking Water:

> *For drinking water, appropriately matching high quality source waters can reduce the levels of pollutants and pollutant precursors that cause health concerns in drinking water. In addition, less costly treatment options can be used when water utilities start with higher quality source waters. In turn, water supply reliability is enhanced and multiple barriers of protection for public health are assured. (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

As a resource strategy, full implementation of a "Matching Water Quality to Use" program would require significant investment in regionalization of groundwater, surface water, recycled water, and desalinized water treatment and conveyance facilities.

This strategy also includes no-cost seasonal exchanges between urban and agricultural water users. Surface water supplies can be transferred to agriculture using urban surface water rights during the peak agricultural water demand period. During these periods, agricultural users would be forced to use groundwater and face pumping constraints in quantity, quality and energy costs. In return for access to urban surface water supplies, the agricultural user returns a similar amount of higher

quality pumped groundwater during the fall-winter period when there is excess groundwater pumping capacity. In cases where place-of-use laws are enacted, transfers would likely have to be within the same region.

Initially, smaller projects can be formulated to push raw source water to the highest beneficial use without treatment, and then consider the level of cost if treatment is required for the same use. This methodology or approach in strategy implementation addresses the following Objectives:

1. Matching untreated groundwater with rural drinking water uses.
2. Matching untreated surface water with rural and agricultural irrigation uses.
3. Making this strategy a part of a communities Water Management Plan where indoor and outdoor uses share in the allocation of overall least cost alternatives, such as, developing a recycled water system for outdoor irrigation rather than extracting additional groundwater (high quality, drought protection), or develop surface water supplies (in cases where there is no groundwater) better suited for potable drinking water supplies and/or maintaining minimum environmental flows.

Complexity

Regionalization of water facilities has inherent complexities typically associated with multi-agency efforts. Such projects are feasible and typically result in the optimum use of water while protecting high quality raw water supplies for drinking water. Initial funding of larger regional projects may be challenging to smaller low income communities.

Resolve Conflicts

Matching water quality to use could reduce conflicts over existing water supplies by providing firm supplies that are sustainable for the applied use. Creating alternative supplies to groundwater for outdoor irrigation use would provide natural in-lieu recharge to over drafted groundwater basins.

Regional Benefits

Matching water quality to use would provide regional benefits by increasing the supply in cases where recycled or desalinized water are needed based on the criteria applied to this strategy. Application of this strategy may be a viable option in the case of new water to support economic development.

Timeliness

Matching water quality to use projects could start up slowly with phased programs to provide regional projects. For large recycled water treatment and conveyance systems, the period to design, permit, and implement and could encounter significant regulatory compliance requirements.

Political Acceptability, Local and Regional

The method of financing and distribution of costs between existing and future customers needs to be determined. Ability to pay and willingness to pay for this strategy has not been fully determined and requires additional economic evaluation.

Adapting to Climate Change

A program of matching water quality to use could maintain standards for drought protection and flooding to improve the ability for the SLO Region to respond to variable climate conditions.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities for matching water quality to use?

How might these opportunities gain political support and funding?

Statewide Management Objective: Improve Water Quality

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- New development should support use and development of impaired quality where cost effective and where such uses could provide economic benefits to the SLO Region.
- Phased projects should be undertaken to begin to evaluate regionalization of water systems for purposes of matching water quality to use, and demonstrate economic use of poor quality water to expand the water supply portfolio and support economic growth.
- Federal or state funding opportunities for development of pilot projects should be pursued if local funding match dollars can be developed.
- Local government and water purveyors should discuss the merits of this strategy and the types of regional partnerships that could be implemented to regionalize raw water supplies for treatment and conveyance to corresponding best and highest beneficial uses.

Additional Recommendations:

Pollution Prevention

Definitions:

Pollution prevention maintains water to its highest quality.

Maintaining the highest water quality opens up the broadest spectrum of users (e.g., degradation of river water quality from wastewater effluent [point source discharges] reduces opportunities for use as an urban supply with further degradation limiting agricultural supplies).

An important pollution prevention strategy is implementation of proper land use management practices to prevent sediment and pollutants from entering the source water.

Non-point sources of pollution due to land use activities are the most difficult to regulate.

State RMS Definition of Pollution Prevention:

> *…the legal doctrine of "public trust" demands that the state protect certain natural resources for the benefit of the public, including uses such as fishing, protection of fish and wildlife, and commerce, all of which are affected by pollution. (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Pollution prevention is a primary objective of multiple goals with many directed at reducing the amount of pollutants entering the environment and drinking water sources of supply. Objectives aligned with this RMS are as follows:

- Support projects to improve water quality in drinking water supplies
- Support watershed enhancement programs
- Provide ecosystem enhancement mechanisms to protect water supplies
- Increase watershed management activities to prevent point and non-point discharges to surface water or groundwater to minimize the need for enforcement of additional Total Maximum Daily Loads actions

- Develop public education and involvement programs for watershed enhancement
- Protect groundwater from point and non-point pollution discharges
- Improve flood control infrastructure to improve water quality and upstream erosion of soils
- Support low impact development to reduce pollutants from increased runoff and protection of natural recharge areas

Complexity

State and federal regulatory programs are already in-place and actively enforced through the National Pollutant Discharge Elimination System (NPDES) permitting process. This program has been effective in targeting point source discharges to both surface water and groundwater. However, non-point source pollutants are still of concern and difficult to regulate. Anti-degradation policies further enforce the need to maintain water quality of supplies to highest beneficial use. Programs directed at non-point source pollutants generally require softer programs such as public outreach and education; long-term monitoring to understand legacy pollutants (i.e., actions from past disposal practices); and the baseline of water quality in each source.

Resolve Conflicts

Continuous regulatory requirements to reduce pollutants from upstream point source effluent discharges will resolve issues surrounding the concern of downstream users having to use upstream wastewater discharges. Similar conflicts with upstream livestock or agricultural runoff making its way to surface and groundwater supplies may be reduced through non-point source regulatory measures.

Regional Benefits

When combined with Matching Water Quality to Use strategies, the SLO Region can direct its efforts in non-point source programs to produce the best and highest quality water for its intended beneficial use.

Timeliness

Current state and federal regulatory measures are already in place for implementation of pollution

prevention programs. Finding the right balance of dedicated resources, for both staff and funding, to public outreach, education and enforcement programs need to be analyzed to ensure the highest benefit-cost ratio.

Political Acceptability, Local and Regional

In general, there is support for implementing pollution prevention programs for point and non-point source discharges

Adapting to Climate Change

Any improvement in the sustainability of drinking water supplies helps the SLO Region respond to climate change vulnerabilities by making maximum beneficial use of the existing supplies allowing for flexibility during periods of drought or flooding.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for pollution reduction measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Develop Water Management Plan elements to support anti-degradation policies

- Conduct needed monitoring, and feasibility and environmental studies to support the implementation of non-point source discharge reduction measures
- Seek state and federal grant funding to support public education and practices aimed at reducing manmade pollution discharge
- Continue to participate in state and federal programs directed and monitoring, assessments, and investigations of how pollution is entering both freshwater supplies and the ocean

Additional Recommendations:

Salt and Salinity Management

Definitions:

Salt and Salinity Management is directed at accounting for the total accumulated salts in a region, and begin to seek management activities to remove the salt before lands are rendered sterile from high salinity concentrations in agricultural soils.

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

The predominance of salt management is taking place along the coastal areas where salinity intrusion is being managed. Any saline water resulting from the pumping of groundwater with desalinization treatment is discharged back into the ocean. Future actions to treat saline groundwater and inject the treated water to act as a barrier to further intrusion are being considered.

In the case of inland areas overlying over drafted groundwater basins, due to recent increases in groundwater extractions by the combination of urban and agricultural pumping, saline water (Total Dissolved Solids > 2000 mg/l) is upwelling into fresh water aquifer zones used by public wells, agriculture wells, and private rural wells. The following excerpt on actions taking place in the community of Paso Robles for the protection of drinking water supplies is taken from the Master Water Report.

> *Nonetheless, salt loading to the groundwater basin is an important long-term concern. Recognizing that the City's wastewater disposal is one source of salt loading, the Paso Robles has made the reduction of salt loading one of their water resource goals. Major means to reduce salt in the city wastewater, include planned use of high-quality Lake Nacimiento supply, reduced use of home water softeners, strategic use of wells with lower salt concentrations, and implementation of an industrial waste discharge ordinance. Support projects to improve water quality in drinking water supplies.*

Salinity Management would help meet objectives by proving a new water source to avoid impacts to existing users.

- Maximizing the accessibility and diversification of alternative water supplies other than

groundwater in critical areas of salinity upwelling

- Provide sustainable water supplies for agriculture, urban, and rural areas by actively managing groundwater basins
- Develop Groundwater Management Plans including salt and nutrient management plans
- Provide support and education in all communities, including DACs, reliant on threatened groundwater supplies

Complexity

The groundwater community understands that the solution to saline groundwater in critical areas cannot be overcome with treatment methods or other hard project solutions. The answer is in reducing groundwater pumping by use of alternative water supplies or more efficient water use.

Resolve Conflicts

Groundwater conflicts are prevalent in the community due to the real concern of private wells going dry or becoming contaminated with salt water. Resolution of over pumping the basin can help to resolve many of the conflicts and potential legal actions currently taking place.

Regional Benefits

If managed, the regional benefits are broad and inclusive of all stakeholders overlying a groundwater basin.

Timeliness

Development of local groundwater management governance and adoption of a GMP and its implementation take time and effort amongst the community. The critical need taking place in the present can certainly expedite processes the generally take years to accomplish.

Political Acceptability, Local and Regional

In general, there is support for implementing groundwater management and governance activities.

Adapting to Climate Change

Any improvement in the sustainability of drinking water supplies helps the SLO Region respond to climate change vulnerabilities by making maximum beneficial use of the existing supplies allowing for flexibility during periods of drought or flooding.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for pollution reduction measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? Below are suggested based on previous studies and the 2007 IRWM Plan and the Master Water Report. Please circle those that you align with and provide additional recommendations, if needed.

- Creation of groundwater management governance body
- Develop and adopt a GMP for impacted basins
- Increase the use of alternative water supplies, such as Lake Nacimiento
- Reduce use of home water softeners that add salt to the treated wastewater stream.
- Strategically place urban and agriculture wells in portions of the aquifer with lower salt concentrations and reduced contribution of the salinity upwelling

- Implementation of an industrial waste discharge ordinance

Additional Recommendations:

Urban Runoff Management

Definitions:

Urban runoff management is a broad series of activities to manage both stormwater and dry weather runoff for the purposes of reducing pollutants being introduced into higher quality sources of water supply.

RMS is not considered for meeting IRWM Goals and Objectives:

Urban runoff management is closely related to both Pollution Prevention and Matching Water Quality to Use, and is considered to be included within the recommendations of both strategies.

Comments:

STATEWIDE MANAGEMENT STRATEGIES TO PRACTICE RESOURCES STEWARDSHIP

- Ecosystem Restoration
- Land Use Planning and Management
- Watershed Management

Not Considered for Meeting SLO Region IRWM Plan Goals and Objectives:

- Agricultural Land Stewardship
- Forest Management
- Recharge Area Protection
- Sediment Management

Agricultural Land Stewardship

Definitions:

Agricultural Land Stewardship's primary goal includes activities to help landowners maintain their farms and ranches rather than being forced to sell their land because of pressure from urban development.

State RMS Definition:

> *Agricultural land stewardship broadly means the conservation of natural resources and protection of the environment. Agricultural land stewardship also protects open space and the traditional characteristics of rural communities, as well as open space within urban areas. (DWR, 2013)*

RMS is not considered for meeting IRWM Goals and Objectives:

Agricultural Land Stewardship is not considered to be included within SLO Region IRWM Plan Goals

and Objectives. Conservation of resources and environment are addressed in Ecosystem Restoration and Land Use planning and Management.

Comments:

Ecosystem Restoration

Definitions:

Ecosystem Restoration is a soft management strategy to work towards restoring lands and waters touched by man to their pre-development condition.

Reproducing natural flows often requires targeting of waste and pollution discharges from upstream development.

Restoration also includes at-risk species whose abundance and geographic range have diminished over the development period of urban, rural and agricultural lands.

State RMS Definition:

> *Ecosystem restoration improves the condition of our modified natural landscapes and biological communities to provide for their sustainability and for their use and enjoyment by current and future generations. (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

The ecosystems restoration strategy focus is on restoration of aquatic, riparian and floodplain ecosystems because these are the natural systems most directly affected by water and flood management action and climate change. Ecosystem Restoration is consistent with the primary IRWM Plan Goal:

> *Maintain or improve the health of the Region's watersheds, ecosystems, and natural resources through collaborative and cooperative actions, with a focus on assessment, protection, and restoration/ enhancement of ecosystem and resource needs and vulnerabilities.*

Key objectives of implementing this strategy are summarized as follows:

1. Development of watershed plans to determine critical issues in targeting restoration actions.
2. Restore natural systems through conservation and easements to protect water supplies.
3. Develop public involvement and stewardship programs.
4. Protect and recover threatened and endangered species.

5. Reduce invasive species.
6. Increase monitoring to obtain a better understanding of climate change on ecosystems.

Complexity

Given the soft nature of this activity, developing cost effective projects/programs which show a high benefit-cost ratio becomes difficult. Often times, ecosystem restoration activities will be included with larger water resources water supply and flood control projects as mitigation to the project.

Resolve Conflicts

Pressure from environmental interests over concerns with new development will be reduced by implementation of ecosystem restoration actions (e.g., purchasing or granting a conservation easement).

Regional Benefits

Ecosystem restoration provides secondary benefits to improved water quality for both surface water and groundwater.

Timeliness

Defining a restoration program and gaining financial support for its implementation takes time and resources typically not found in this management element. As grant programs begin to fund such activities, review and permitting should be expedited.

Political Acceptability, Local and Regional

In general, there is support for implementing ecosystem restoration programs that target conservation and preservation of natural lands for purposes of improving water resources and threatened and endangered species.

Adapting to Climate Change

[Add text]

Statewide Management Objective: Practice Resources Stewardship

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for ecosystem restoration measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Begin placing a monetary benefit value to ecosystem restoration activities using cost benefit analysis of not having to store, treat and convey a quantified amount of water supplies because of improved natural systems.
- Introduce the concept of avoided cost of nature providing natural flood attenuation and sediment control.
- Conduct needed monitoring, and feasibility and environmental studies to support the implementation of ecosystem restoration measures.
- Seek state and federal grant funding to support public education and practices aimed at restoration practices.
- Seek to identify ecosystems restoration and enhancement opportunities that could be integrated into proposed IWRMP projects.

Additional Recommendations:

Forest Management

Definitions:

Forest Management is intended to understand and maximize the water produced through the conservation and management of forest lands.

State RMS Definition:

> *Forest management activities can affect water quantity and quality. The strategy…focuses on forest management activities, on both publicly and privately owned forest lands, whose goals specifically include improvement of the availability and quality of water for downstream users. (DWR, 2013)*

RMS is not considered for meeting IRWM Goals and Objectives:

Forest management is closely related to Ecosystem Restoration and Recharge Area Protection strategies and is considered to be included within the recommendations of both strategies.

Comments:

Land Use Planning and Management

Definitions:

Land Use Planning and Management is linked with many of the management strategies within watershed planning, water use efficiency, flood management, climate change, and resources stewardship.

Integrating land use and water management consists of planning for the housing and economic development needs of a growing population, while providing for the efficient use of water, water quality, energy, and other resources.

State RMS Definition of Land Use:

> *Stronger collaboration between land use planners and water managers can promote more efficient and effective land use patterns and greater integration of regional water management (IRWM), which can produce safer and more resilient communities. (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Land use planning is included in multiple IRWM Plan Objectives related to watershed, water management, groundwater management, and low impact development plans. Specific Objectives include:

- Develop Water Management Plans that achieve sustainability with existing and foreseeable development
- Develop a plan for climate change and the associated impacts of droughts and flooding on urban and agricultural developed areas
- Introduce watershed enhancement programs to maintain, or increase, water supplies with changes in land use over time
- Promote low impact development and other land use practices aimed at reducing flooding and protecting water supplies

- Integrate water resources infrastructure into land use planning for flood control and improved water supplies
- Consider protecting existing water rights (quantity and quality) in land use planning so as not to degrade or reduce legally protected water supplies

Complexity

Land use planning is a long-term commitment requiring a dedicated program to continuously incorporate features for the protection of water supplies and reduction in flooding.

Resolve Conflicts

Pressure from environmental interests over concerns with new development will be reduced by implementation of smarter land use planning targeting the protection of water resources.

Regional Benefits

Land use management provides secondary regional benefits to improved water quality for both surface water and groundwater.

Timeliness

The implementation of various water and land use related plans is typically measured in decades. Through monitoring programs set up as part of continuous growth and change, land use planning actions can be measured over time to understand the full benefits of long-term program implementation.

Political Acceptability, Local and Regional

In general, there is support for implementing eco-friendly land use plans that target improving quality of life.

Adapting to Climate Change

California has established a series of environmental goals (e.g., the Renewable Portfolio Standard and the greenhouse gas emission reduction goals) ***for communities to adopt in their individual land use planning actions***, including efforts to reduce greenhouse gas emissions, develop a clean

economy, and provide clean air and water for all residents

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for land use planning and management?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Strive to have local planning agencies work alongside water agencies as watershed, water management, flood management, and groundwater management plans are developed and implemented
- Continue to involve agriculture and rural stakeholders in the land use planning process
- Protect natural groundwater recharge areas by incorporating conservation easements over lands which contribute to the recharge of existing groundwater supplies

Additional Recommendations:

Recharge Area Protection

Definitions:

Recharge Area Protection increases the sustainable yield of groundwater from the benefitting basins.

Protection of recharge areas is necessary if the quantity and quality of groundwater in the aquifer are to be maintained.

State RMS Definition:

> *Recharge areas are those areas that provide the primary means of replenishing groundwater. Good natural recharge areas are those where good quality surface water is able to percolate through the sediments and rocks to the saturated zone, which contains groundwater. (DWR, 2013)*

RMS is not considered for meeting IRWM Goals and Objectives:

The Recharge Area Protection strategy does not play a critical role in the SLO Region IRWM Plan and is considered to be included under multiple strategies including pollution prevention, ecosystem restoration and land use planning.

Comments:

Sediment Management

Definitions:

Sediment Management is the understanding, on watershed by watershed basis, the benefits and impacts of erosion of native soils or manmade materials.

Regional sediment management is the effort to use sediments most beneficially throughout the the watershed.

State RMS Definition:

> *Sediment management is an essential for integrated water management as the presence or absence of sediment will have significant impacts on water and its beneficial uses. (DWR, 2013)*

RMS is not considered for meeting IRWM Goals and Objectives:

Sediment control strategies are not considered as an issue in the IRWM Plan beyond the programs in place to reduce sediments from manmade actions such as new construction or urban runoff. While deemed to be important, the watershed-level understanding of benefits and impacts of sediments is not available.

Comments:

Watershed Management

Definitions:

The watershed unit is the optimal boundary for managing the watershed's ability to provide for the needs of the community, both natural and manmade.

Watershed Management can range from maintenance to restoration of a watershed's natural resources.

State RMS Definition of Watershed Management:

> *Watershed management is the process of creating and implementing plans, programs, projects, and activities to restore, sustain, and enhance watershed functions. (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Need to understand the Watershed Studies and if they fit here?

Complexity

[add text here]

Resolve Conflicts

[add text here]

Regional Benefits

[add text here]

Timeliness

[add text here]

Political Acceptability, Local and Regional

[add text here]

Adapting to Climate Change

[add text here]

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for land use planning and management?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

-

Additional Recommendations:

STATEWIDE MANAGEMENT STRATEGIES TO IMPROVE FLOOD MANAGEMENT

Flood Management

Definitions:

Flood Management is the ability to predict and control the movement of flood waters at varying degrees of intensity.

Flooding damage occurs when hydrologic conditions are not planned for or if the infrastructure fails to perform as designed.

State RMS Definition of Flood Management:

Flood management consists of three primary activities:

1. *Managing flood risk — keeping floodwater away from people and property*
2. *Managing floodplain resources — keeping people and assets out of the path of floodwater*
3. *Managing floodplain functions — sustaining the natural function of floodplains including creating habitats, attenuating flows, and sediment transport*

(DWR, 2013)

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Flood Management strategies are a primary goal of the IRWM Plan as follows:

Foster an integrated, watershed approach to flood management and improved stormwater quality through collaborative community supported processes in order to ensure community health, safety and to enhance quality of life.

Objectives include:

- Understand Flood Management needs in the community
- Promote Low Impact Development to reduce runoff and protect against property damage
- Enhance natural groundwater recharge through deliberate ponding and detention of flood flows in areas of conducive to high recharge rates
- Improve infrastructure and operations to reduce flooding in downstream communities
- Implement multiple benefit projects to achieve the highest and best use of flood projects
- Restore streams, rivers and floodplains to allow the natural flood paths to attenuate peak flood flows
- Support DAC flood protection

Complexity

Flood management requires a concerted effort between multiple land use agencies and the flood control district, making project and operations implementation challenging. Level of acceptable flood risk and apportionment of flood control/operations benefits requires continuous community outreach, especially in cases where a DAC is at risk of flooding.

Resolve Conflicts

Regional flood control and management provides the highest level of flexibility in reducing conflicts associated with an upstream community changing the flooding frequency through land use and development actions.

Regional Benefits

Large flood control projects can serve multiple communities crossing over political boundaries as the waterways move towards the ocean. Upstream actions can benefit multiple downstream agencies.

Timeliness

Statewide Management Objective: Improve Flood Management

Flood management is and has been in place for ___ years in SLO County. Larger projects requiring funding have been designated and are to be included in the most current list of IRWM projects.

Political Acceptability, Local and Regional

Regional benefits and decreased probability of loss of life and property typically gains support but not urgency. Wet years and experienced flood events often change this sentiment.

Adapting to Climate Change

Flood management is a critical strategy for the SLO Region to safely adapt to climate change. This is done through studies of how weather patterns will change and in some cases require the upsizing of large infrastructure projects. Flood control operations can be refined as more is understood about the effects of climate change.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for ecosystem restoration measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Continue to protect against loss of life and property through flood management actions by the Flood Control District.

- Stakeholder assessments and a DAC needs analysis are needed to document localized stormwater and runoff issues and bring about an awareness of the need for regional solutions.
- Development of regional, integrated stormwater management projects that provide multiple benefits.
- Flood Management projects to endorse include:
    - Total storage approach to providing flood protection.
    - Regional detention/retention ponds which have multiple beneficial uses, instead of development-specific detention ponds.
    - Improvements to local drains to store additional flow from increased urban runoff.
- Utilization of specific plan areas to work with developers to produce drainage master plans.

Additional Recommendations:

Statewide Management Objective: Reduce Water Demand

STATEWIDE MANAGEMENT STRATEGIES TO REDUCE WATER DEMAND

- Agricultural Water Use Efficiency
- Urban Water Use Efficiency

Agricultural Water Use Efficiency

Definitions:

Water use efficiency in any application or use is the scientific understanding of the true water demand to sustain the beneficial use for which it is intended.

Agricultural Water Use Efficiency strategies are intended to educate and bring awareness to the agricultural community on what are the optimum water requirements for the crops irrigated or livestock managed.

State RMS Definition of Water Conservation:

> *…the efficient management of water resources for beneficial uses, preventing waste, or accomplishing additional benefits with the same amount of water (CWC Section10817). (DWR, 2013)*

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Water use efficiency programs are stated as Objectives in the IRWM Plan. For agriculture, programs already in place are providing the benefit of reduced strain on the regional groundwater basin. Additional education, conservation and use of technology are needed to achieve additional benefits. The benefits, in addition to water savings, may include water quality improvements, environmental benefits, improved flow and timing, and often increased energy efficiency. The IRWM Plan Objectives are as follows:

- Support sustainable water supplies for agriculture
- Develop and implement conservation programs to increase water use efficiencies in all water

use sectors

Complexity

Water use efficiency programs need to be directed to each agricultural water use sector (i.e., row crops, orchards, vineyards, etc.) individually, integrated as part of an Agricultural Water Management Plan, if possible, with education of the best management practices, and hardened measures such as the implementation of cost-effective technologies sized and based on the product being grown. Given the complex factors affecting agricultural productivity, economic benefits can only be used as a gauge and can in no means be exclusively linked to the efficiency of water use.

Resolve Conflicts

Competitiveness between urban and agriculture uses sharing the same source of supply continues to be heated. To reduce this ongoing conflict, a regional Water Use Efficiency program is needed to consider both urban and agricultural measures that produce the highest overall benefit for the SLO Region. This requires one use sector to subsidize another based on the allocation of benefits received (e.g., urban pays for agricultural drip irrigation).

Regional Benefits

Given the regional nature of implementing any water use efficiency program, regional benefits are a likely outcome of this strategy. Economic incentives and funding sources would likely come from a regional-scale project to educate and implement specific water conservation measures.

Timeliness

Existing programs need to be evaluated for their effectiveness and identify where improvements can be made over a continuous 5-year horizon. State law (SBX7-7) requires agricultural water suppliers to prepare plans and implement efficient water management practices. Given SLO Region's unorganized agricultural sector, this requirement does not apply to individual growers unless funding has been provided.

Political Acceptability, Local and Regional

Water conservation is often thought of as a penalty, or, in some cases, as a means to take away existing water rights and reduce their dry year supplies. Acceptability amongst the agricultural community will need to take place prior to rolling out any project or program suggested as part of

the IRWM Plan.

Adapting to Climate Change

On-farm water use efficiency improvements often require additional energy. Water use efficiency efforts not only increase energy use, but also often shift use of energy and resources to other parts of the production system. Within the agricultural setting, the net impact of reduced water use and increased water use efficiency on the energy use and consequently on net carbon footprint, water footprint, and greenhouse gas emissions calls for study and quantification of such impacts.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for agricultural water use efficiency measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Agricultural growers should be encouraged to organize to become eligible for statewide incentive programs, and to take the lead in submitting IRWM projects for purposes of grant funding.
- Studies should be conducted to understand the benefits of subsidizing agricultural water use efficiency measures to use the conserved water for purposes of increased reliability in urban water sectors.

- Measures should be taken to ensure a grower's freedom in making the decision of what to grow.

Additional Recommendations:

Urban Water Use Efficiency

Definitions:

Water use efficiency in any application or use is the scientific understanding of the true water demand to sustain the beneficial use for which it is intended.

Urban demand management, or water use efficiency, is important to lowering water demands to help stretch existing water supplies in dry conditions and, if permanent reductions in demand, to support new growth.

State RMS Definition:

Using water efficiently yields multiple benefits, including:

- *Increased reliability of water supplies*
- *Improved capacity to meet the increasing water demand of California's growing population*
- *Delayed capital costs for new infrastructure to treat and deliver water*
- *Reduction in contaminated irrigation runoff to surface waters*
- *Reduced volume of wastewater, thus reducing capital costs and ongoing treatment costs*
- *Increased availability of water for surface or groundwater storage in wet years*
- *Reduced water-related energy demands and associated greenhouse gas emissions*
- *Reduced diversions from the Bay-Delta*

(DWR, 2013)

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

Water use efficiency programs are stated as Objectives in the IRWM Plan. For urban users living in California and the SLO Region, water conservation has been a part of their lives giving thought to not

wasting water for the environment to reducing their water bill. As the cost for raw water continues to increase, continued implementation of new conservation measures is an effective means of keeping the customer's costs relatively stable.

The IRWM Plan Objectives are as follows:

- Support sustainable water supplies in all communities
- Develop and implement conservation programs to increase water use efficiencies in all water use sectors

Complexity

Constraints to implementing water conservation measures include the administrative costs to develop and implement programs since many communities have lower incomes or are disadvantaged; lack of financial incentives to support program implementation; relatively low cost of groundwater; and program costs or rates.

Resolve Conflicts

To maintain fairness, urban water use efficiency measures should be undertaken to ensure that urban users are reasonably and beneficially using the water; that urban users are being held to the same high standards as agriculture; and that all practical conservation measures are being implemented.

Regional Benefits

The IRWM Plan can help to define regional opportunities to cost effectively support programs to implement water conservation measures and regional opportunities to comply with requirements.

Timeliness

Implementation of conservation programs is a continuous process with goals set by the state through SBX7-7 to show a 20% reduction in water use by 2020. The 20 X 2020 law has accelerated conservation programs throughout the state, helping to reduce the need for local efforts in public education due to economies of scale.

Political Acceptability, Local and Regional

Conservation programs require political acceptability for changing lifestyles (or how water is used), and a general resistance to making investments in water savings so that future growth can be supported. There is also the concern that conservation would reduce the community's ability to respond to a drought or shortage year, resulting in unnecessary hardships imposed on the community.

Adapting to Climate Change

Urban Water Use Efficiency enables local agencies to both adapt to increased dryness and to mitigate greenhouse gas emissions by reducing water and energy use. Improving water use efficiency is a mitigation strategy to climate change because of the relationship between greenhouse gas emissions and the use of fossil fuels that create the energy required to produce, convey, treat, and distribute water. This required energy varies from community to community, depending on local circumstances. Increasing water use efficiency serves as a way to mitigate and adapt to climate change.

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for urban water use efficiency measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

- Cities should coordinate the 2010 Urban Water Management Plan (UWMP) updates:
- Define urban water conservation regional funding mechanisms and approach
- Develop a Regional UWMP (near-term action)
- Develop drought management/contingency and catastrophic supply interruption plans
- Implement a water conservation public information and outreach campaign
- Review and track progress in implementing measures and implementing local or a regional 2010 UWMP
- Prepare an annual report to document regional progress
- Cities should target future water uses, emphasizing development of standards that would minimize future water demands and ensure measurable savings when agricultural land is converted to urban uses consistent with existing land use plans
- Streamline the development review and permitting process and ensure that water conservation practices are implemented at the time of project development and approval

Additional Recommendations:

STATEWIDE MANAGEMENT STRATEGIES TO IMPROVE OPERATIONAL EFFICIENCY AND TRANSFERS

- Conveyance – Delta
- Conveyance – Regional/Local
- System Reoperation
- Water Transfers

Conveyance – Delta

Definitions:

[add text here]

State RMS Definition of Conveyance in the Delta:

[Add state definition of conveyance in the Delta here]. (DWR, 2013)

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

[add text here]

Complexity

[add text here]

Resolve Conflicts

[add text here]

Regional Benefits

[add text here]

Timeliness

[add text here]

Political Acceptability, Local and Regional

[add text here]

Adapting to Climate Change

[add text here]

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for ecosystem restoration measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

-

Additional Recommendations:

[add text here]

Conveyance – Regional/Local

Definitions:

Conveyance provides for movement of water and includes natural water courses and infrastructure like canals, pipelines, diversion structures. Local conveyance includes the locally owned and managed conveyance infrastructure such as the large pipelines used to deliver wholesale raw and treated water and smaller pipelines that convey treated water to retail customers.

State RMS Definition of Regional/Local Conveyance:

[Add state definition of regional/local conveyance here]. (DWR, 2013)

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

[add text here]

Complexity

[add text here]

Resolve Conflicts

[add text here]

Regional Benefits

[add text here]

Timeliness

[add text here]

Political Acceptability, Local and Regional

[add text here]

Adapting to Climate Change

Statewide Management Objective: Improve Operational Efficiency and Transfers

[add text here]

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for ecosystem restoration measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

-

Additional Recommendations:

System Reoperation

Definitions:

[add text here]

State RMS Definition of System Reoperation:

[Add state definition of system reoperation here]. (DWR, 2013)

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

[add text here]

Complexity

[add text here]

Resolve Conflicts

[add text here]

Regional Benefits

[add text here]

Timeliness

[add text here]

Political Acceptability, Local and Regional

[add text here]

Adapting to Climate Change

[add text here]

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for ecosystem restoration measures?

Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

-

Additional Recommendations:

Water Transfers

Definitions:

[add text here]

State RMS Definition of Water Transfers:

[Add state definition of water transfers here]. (DWR, 2013)

SLO Region IRWM Plan Screening Criteria:

SLO Region IRWM Plan Goals and Objectives

[add text here]

Complexity

[add text here]

Resolve Conflicts

[add text here]

Regional Benefits

[add text here]

Timeliness

[add text here]

Political Acceptability, Local and Regional

[add text here]

Adapting to Climate Change

[add text here]

Sub-Region Stakeholder's Findings

When you think about the above screening criteria, what elements of your Sub-Region satisfy the criteria? Especially, respond to the following questions:

What are the opportunities (or needs) for ecosystem restoration measures?

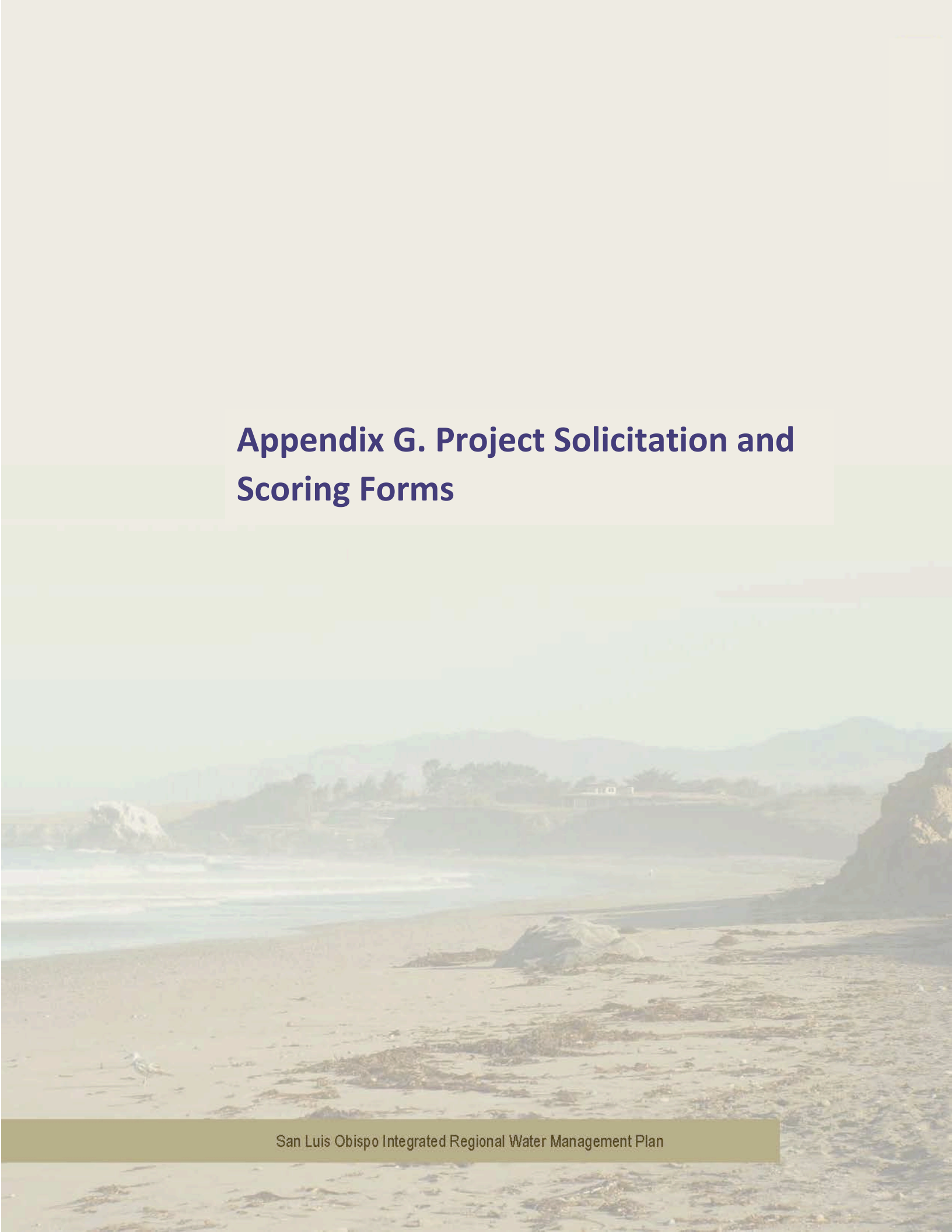
Recommendations:

What are your recommendations for including this RMS in the SLO Region IRWM Plan? The suggestions below are based on previous studies and from the 2007 IRWM Plan. Please circle those that you align with and provide additional recommendations, if needed.

-

Additional Recommendations:

Appendix G. Project Solicitation and Scoring Forms



G-1 Project Selection Brochure

San Luis Obispo IRWM Plan Update

Full Project List Finalized

SAN LUIS OBISPO REGION'S DRAFT IRWM PLAN VISION STATEMENT

Create a united framework among SLO County Stakeholders for sustainable water resource management.

IRWM PLAN MISSION

Facilitate regional plans, programs, and projects to further sustainable water resource management.

Upcoming Events

FEBRUARY 2014

- Focus Group Meeting

MARCH/APRIL 2014

- RWMG Meeting
- Public Draft Release of IRWM Plan

MAY 2014

- Collect public comments

JUNE/JULY 2014

- Address public comments

AUGUST/SEPT 2014

- Finalize and adopt IRWM Plan

Since January 2013, the Regional Water Management Group (RWMG) has been working with water users throughout the County, the San Luis Obispo County Flood Control and Water Conservation District (District), and Subregional Working Groups to prepare the San Luis Obispo County IRWM Plan Update (Plan Update). This effort has been coordinated with the Water Resources Advisory Committee to ensure the Plan Update addresses county-wide issues, as well as local issues through coordination with local agencies and the three Subregional Working Groups which represent the North County, North Coast, and South County.

PROJECTS TO IMPLEMENT THE PLAN

During the first half of 2013, the San Luis Obispo County IRWM Plan Update established goals and objectives related to water resources planning.

To achieve those goals, the region's participants' and stakeholders' implement projects and programs. Recent activity on the Plan Update included the creation of the **2013 IRWM Plan Project List** (which is presented in this brochure).

The IRWM Plan includes both planned **projects and programs**, and describes how those projects and programs address the IRWM Plan goals, and specifically how each will be implemented. The IRWM Plan also maintains a list of water resources **concepts** (projects in the preliminary or planning stages) for stakeholders to consider over long term Plan implementation.

PROJECT SOLICITATION PROCESS

San Luis Obispo County stakeholders have been actively engaged in the IRWM Plan Update's project solicitation and review process. From June to December 2013, the Project Management Team (PMT), under the direction of the Regional Water Management Group (RWMG), solicited water resources concepts and projects/programs from stakeholders. Altogether, agencies, organizations, and

individual stakeholders submitted 91 abstracts for the 2013 call for projects and programs proposed to add value to San Luis Obispo County's integrated management of water resources in the areas of water supply, groundwater management, flood management, ecosystem restoration, and general water resources management.

COMPILING THE FULL PROJECT LIST

The PMT reviewed and initially ranked the submittals in accordance with the RWMG-approved project review guidelines (follow the IRWMP quicklink on the County's Water Resources site at http://www.slocountywater.org/). Some submittals were either not IRWM-related or were integrated into another project submittal. Of the 91 submittals, 81 were added to the Full Project List - 52 of those were classified as concepts and 29 were classified as projects/programs. Concepts, programs, and projects from the 2007 IRWM Plan were also reviewed, 34 of which were added to the Full Project List as well. As a result of this project screening, the 2013 IRWM Plan Full Project List includes 115 projects.

CREATING THE FINAL IRWM PLAN PROJECT LIST

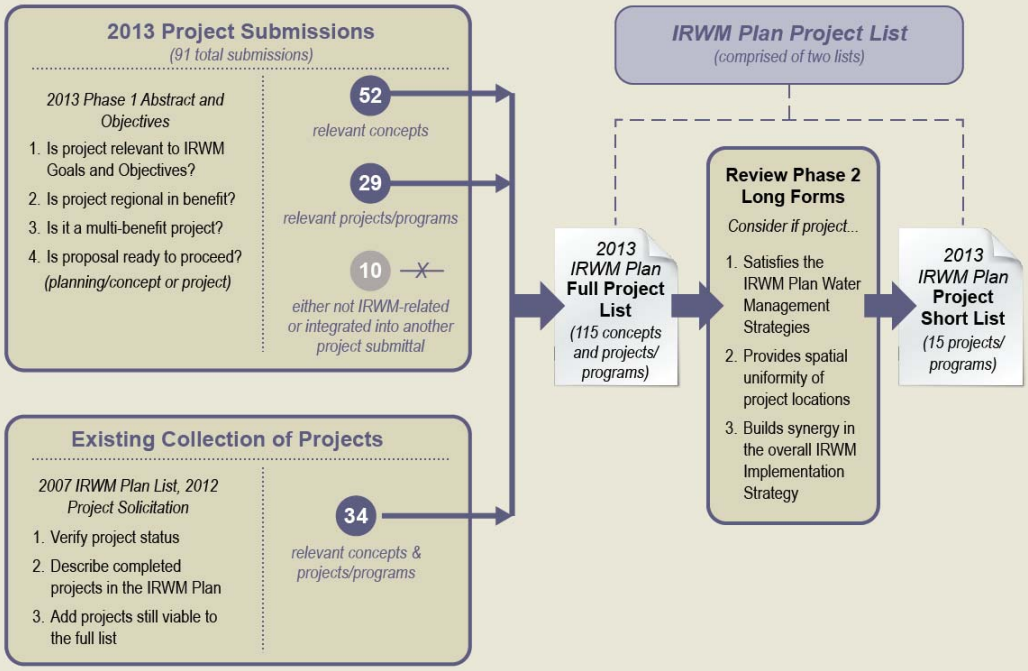
At the October 2nd RWMG meeting, the PMT presented the IRWM review process and resulting Full Project List. Various integration opportunities were noted at that meeting. The RWMG asked the RWMG Working Group (and Project Sponsors) to meet and integrate/finalize the IRWM Plan Project List (includes both the Full Project List and Project Short List).

The RWMG Working Group held that public meeting on October 16th. The whole process and resulting integrated IRWM Project List was published and sent out to the RWMG and Interested Stakeholders in order to seek input, inform the public, and solicit comments. This brochure memorializes the results of this six month process to develop a Full Project List and Project Short List.

Why Two Lists?

The purpose of having two lists is to satisfy the State's requirements of an IRWM Plan (Final IRWM Project List), and to constantly maintain a list of the region's most current projects for use in selection upon notification of regional or local funding opportunities (Full Project List). The Full Project List will be an appendix to the IRWM Plan, and will be updated on an as-needed basis (at a minimum of every two years). All projects included on this list are considered to be a part of the IRWM Plan and will be considered for future funding and implementation opportunities.

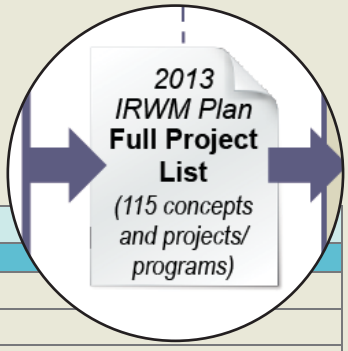
The figure on page 3 visually describes how the collection of projects from the 2007 IRWM Plan, the 2012 project solicitation, the Phase 1 2013 Project Abstracts (and Objective Worksheet), and the Phase 2 Project Long Forms were combined to form the Full Project List and which was further screened to create the Project Short List.



Forming the IRWM Plan Full Project List and Project Short List

FULL PROJECT LIST

The Full Project List below identifies the 115 IRWMP-related concepts and projects/ programs by Sub-Region, and includes the project sponsor. Projects followed by an asterisk also show up on the Project Short List.



Full Project List

#	Project, *Sponsor*
Multi-Regional Submittals	
1	Conservation Planning for Coastal Watersheds, *Coastal San Luis Resource Conservation District*
2	Agricultural Water Management and Conservation Program, *Coastal San Luis Resource Conservation District*
3	Closing Priority Conservation Data Gaps, *Coastal San Luis Resource Conservation District*
4	Countywide Watershed and Creek Signage, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*
5	Countywide Watershed Planning Phase II, *Coastal San Luis Resource Conservation District*
6	Desalination Study, *Various*
7	Development of Basic Salt & Nutrient Management Plans, *Various*
8	Feasibility Study for Recycled Water for Agricultural Use, *Coastal San Luis Resource Conservation District*
9	Federal Flood Insurance Program Compliance Study, *San Luis Obispo County Flood Control and Water Conservation District*
10	Invasive Species Program, *County of San Luis Obispo*
11	Livestock & Land Program*, *Coastal San Luis Resource Conservation District (CSLRCD) and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*
12	LID Pilot Program*, *US-LTRCD*
13	Mined Lands Remediation Program, *San Luis Obispo County Flood Control and Water Conservation District*
14	Raising Santa Margarita Dam, *Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)*
15	Rancher 2 Rancher Program, *Coastal San Luis Resource Conservation District*
16	Regional Implementation of Groundwater Management Activities, *Various (depends on basin)*
17	SLO Communities Water Enhancement Program, *Central Coast Salmon Enhancement*
18	Stormwater Rewards Rebate Program, *Coastal San Luis Resource Conservation District*

Full Project List, *cont.*

#	Project, *Sponsor*
19	Urban Landscape Water Management and Conservation Program, *Coastal San Luis Resource Conservation District*
20	Water Conservation Corps, *California Conservation Corps (CCC) – San Luis Obispo Center _ (Other Partners TBD)*
21	Waterways Vegetation Management Program, *San Luis Obispo County Flood Control and Water Conservation District*
22	Wetland and Vernal Pool Mapping, *County of San Luis Obispo*
North Coast Submittals	
23	8th Street Upper Aquifer Well and Nitrate Removal Facility*, *Los Osos Community Services District*
24	Cambria CSD Water System Improvements, *Cambria CSD*
25	Chorro and Morro Groundwater Basin Management Plans, *Morro Bay National Estuary Program*
26	Chorro Creek Ecological Reserve Floodplain Restoration Project, *Morro Bay National Estuary Program*
27	Chorro Valley Master Water and Waste Water Plan, *City of Morro Bay*
28	Cambria Pump Station, County of San Luis Obispo, *Department of Public Works*
29	Conservation Planning for North Coast Landowners, *US-LTRCD*
30	County Service Area 10 – Clearwell Tank Roof Replacement, *San Luis Obispo County Flood Control & Water Conservation District*
31	County Service Area 10A Water System Improvements (Integrates 2 submittals: New 200k Gallon Storage Tank; and Storage Tank Roof Replacement), *San Luis Obispo County Flood Control & Water Conservation District*
32	Los Osos Community Stormwater Master Plan, *Los Osos CSD*
33	Los Osos Landfill Remediation – Pump and Treat, *County of San Luis Obispo*
34	Los Osos Water System Improvements, *Los Osos CSD*
35	Los Padres CCC Center – Stormwater LID Treatment Project*, *Morro Bay National Estuary Program*
36	Morro Bay–Cayucos Sanitation District Salt and Nutrient Management Plan, *City of Morro Bay*
37	Morro Bay NPDES Illicit Discharge Detection and Elimination Ordinance, *City of Morro Bay*
38	Morro Bay Wastewater Treatment Facility Upgrade, *City of Morro Bay*
39	North Coast Watershed Plans, *US-LTRCD*
40	Rehabilitation–Installation of Retention Ponds in North Coast (store & release), *US-LTRCD*
41	S&T Mutual Water Co–Golden State Water Co Intertie, *S&T Mutual Water Company*
42	San Simeon CSD Water System Improvements, *San Simeon CSD*
43	San Simeon Small Scale Recycled Water Project, *San Simeon CSD*
44	San Simeon Wastewater Treatment Facility Upgrade, *San Simeon CSD*
45	SLO County Drought Protection & Climate Change Preparedness Pilot Project, *GREENSPACE – The Cambria Land Trust*
46	Streambank Stabilization & Restoration in Santa Rosa Creek, *US-LTRCD*
47	Water Conservation Partnerships in Chorro Valley, *Morro Bay National Estuary Program*
North County Submittals	
48	21ST Street Reservoir Reconstruction, *City of Paso Robles*
49	Atascadero Creek Watershed Management Plan, *City of Atascadero*
50	Atascadero Lake Treatment System, *City of Atascadero*
51	Atascadero Wastewater System Upgrade, *City of Atascadero*
52	Attiyeh Ranch Conservation Easement Project*, *Land Conservancy*
53	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction*, *City of Paso Robles*
54	Community Based Social Marketing – Paso Groundwater Basin Community (water quality & quantity)*, *US-LTRCD*
55	County Service Area 23 (CSA 23) Water Reliability Program, *County of San Luis Obispo – Public Works Dept*
56	County Service Area 7A – Oak Shores – Interception Sewer System Replacement, *County of San Luis Obispo*
57	Creston State Water Project Turnout, *Requires formation of Water Purveying Entity*
58	CSA 16 (Shandon) Water System Improvements (integrate 4 submittals: Waterline – Replace Centre Street; Waterline – Upsize 1st Street; Waterline Loop N. 2nd to N. 3rd Streets; New Storage Tank), *San Luis Obispo County Flood Control & Water Conservation District*

Full Project List, *cont.*

#	Project, *Sponsor*
59	Emergency Water Turnout for Heritage Ranch CSD, *San Luis Obispo County Flood Control & Water Conservation District*
60	Evaluating Land-Surface Subsidence and Potential Groundwater Storage Losses as Part of Assessing Proposed Water Banking Sites in Paso Robles Groundwater Basin, *USGS*
61	Groundwater Monitoring Program and Modeling Program for the Paso Robles Groundwater Basin, *Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)*
62	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Ag BMPs* (integrated 2 submittals: Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin; North County Precision Irrigation Research Program_ Precision Agriculture), *Vineyard Team & US-LTRCD*
63	Interlake Tunnel Project, *Nacimiento Regional Watershed Management Advisory Committee*
64	Nature Center & Conservation Hub, *US-LTRCD*
65	North County Fertilizer Regions Precision Agriculture*, *US-LTRCD*
66	North County Strategic Plan, *Institute for Advanced Technology & Public Policy, Cal Poly, San Luis Obispo*
67	Off Stream Storage within the North County, *Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)*
68	Phase 2 – Lake Nacimiento Potable Water Treatment Plant, *City of Paso Robles*
69	Pilot Project Impact of Santa Margarita Lake Discharges on Groundwater Basin, *Unknown*
70	Recycled Water Treatment and Distribution System – Phase 1, *City of Paso Robles*
71	Recycled Water Treatment and Distribution System – Phases 2_3, *City of Paso Robles*
72	San Miguel CSD Water System Improvements*, *San Miguel CSD*
73	San Miguel Flood Control Program, *San Luis Obispo County Flood Control and Water Conservation District*
74	Supplemental Water Supplies for Paso Robles Groundwater Basin (integrates 5 submittals: Community Water Systems for Subdivided Regions Overlying the Paso Robles Groundwater Basin; Irrigation Distribution System at Paso Robles Airport Area; Paso Robles Groundwater Basin Restoration and Basin Recharge; Paso Robles Groundwater Basin In-Lieu Recharge Study and Preliminary Layout), *TBD*
75	Sustain SLO North: A Water Conservation Stewardship Plan for North County, San Luis Obispo, *US-LTRCD*
76	Templeton CSD East Side Force Main and Lift Station Project, *Templeton CSD*
77	Templeton CSD Water System Improvements, *Templeton CSD*
78	Toad Creek flood control, restoration and basin recharge, *US-LTRCD*
79	Toad Creek Waterway Management Program, *SLO County Flood Control and Water Conservation District*
80	Upper Salinas River Basin Water Conservation/Conjunctive Use Project*, *Templeton CSD*
81	Upper Salinas Watershed Plans, *US-LTRCD*
82	Vertical Well Project for HRCSD, *Heritage Ranch CSD*
83	Water-wise program (with target applied irrigation rates), *US-LTRCD*
South County Submittals	
84	Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed, *Coastal San Luis Resource Conservation District*
85	Arroyo Grande Creek Channel Waterway Management Program, *San Luis Obispo County Flood Control and Water Conservation District, Central Coast Salmon Enhancement*
86	Avila Beach Wastewater System Upgrade, *Avila Beach CSD*
87	Beach Street Alley Waterline Replacement, *Oceano Community Services District*
88	Conjunctive Use and Groundwater Banking Evaluation, *Oceano Community Services District*
89	Edna Valley Groundwater Basin Study, *Various*
90	Flood Control Zone 1/1A Waterway Management Program, *San Luis Obispo County Flood Control & Water Conservation District*
91	Flood Control Zone 3 – Lopez WTP Sludge Bed 1 & 2 Upgrades, *San Luis Obispo County Flood Control & Water Conservation District*
92	Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek, *Coastal San Luis Resource Conservation District*
93	Lopez Lake Spillway Raise Project, *Zone 3 Agencies (Cities of Arroyo Grande, Grover Beach and Pismo Beach, Oceano Community Services District and County Service Area 12)*

Full Project List, *cont.*

#	Project, *Sponsor*
94	Lopez Pipeline Improvements, *Northern Cities Management Area (NCMA) Agencies: Oceano Community Services District (OCSD), City of Arroyo Grande, City of Grover Beach, City of Pismo Beach*
95	Lopez Water Project Habitat Conservation Plan, *San Luis Obispo County Flood Control and Water Conservation District*
96	Lopez Water Treatment Plant Membrane Rack Addition*, *San Luis Obispo County Flood Control and Water Conservation District*
97	Mapping the saltwater-freshwater interface in southern San Luis Obispo and northern Santa Barbara County, California, *USGS*
98	Meadow Creek Restoration Plan (integrates: Meadow Creek Flood Reduction), *Central Coast Salmon Enhancement (and Coastal San Luis RCD)*
99	Mid-Higuera Bypass , *City of San Luis Obispo*
100	Nacimiento Water Project Energy Recovery Turbine, *City of San Luis Obispo*
101	Nipomo Area Water Reuse Plan, *Nipomo CSD*
102	Nipomo CSD Supplemental Water Project, *Nipomo CSD*
103	Oceano Community Services District Water System Improvements, *Oceano CSD*
104	Oceano Drainage Improvement Project – Hwy 1 & 13th Street*, *County of San Luis Obispo, Department of Public Works*
105	On-Farm Water Quality Enhancement and Conservation Plan for Coastal Watersheds, *CSLRCD*
106	Pismo Beach Recycled Water Treatment Plant*, *City of Pismo Beach*
107	Pismo Creek Watershed Program, *Central Coast Salmon Enhancement*
108	Recycled Water Distribution System Expansion*, *City of San Luis Obispo*
109	Recycled Water Master Plan Update, *City of San Luis Obispo*
110	Regional Recycled Water System (Pismo Beach and SSLOCSD) (integrates Pismo Beach Recycled Water System), *City of Pismo Beach*
111	San Miguelito Wastewater System Upgrade, *San Miguelito MWC*
112	Santa Maria Groundwater Basin Model, *NCMA Agencies (Oceano Community Services District, Cities of Arroyo Grande, Grover Beach and Pismo Beach), Nipomo CSD*
113	See Canyon Watershed Management Plan, *Central Coast Salmon Enhancement*
114	Southland Wastewater Treatment Facility Upgrade, *Nipomo CSD*
115	Steelhead 4(d) Program, *Central Coast Salmon Enhancement*

PROJECT SHORT LIST

The Project Short List identifies those projects/programs that are technically feasible and strategically suited to be fully described in the IRWM Plan. Many projects were not included because they did not provide enough data or did not address enough objectives (per State Guidelines) to adequately incorporate information throughout the IRWM Plan Update itself. That differentiation does not note a project as being less significant. It simply means that the project will not be incorporated into various IRWM Plan sections. All projects will still remain on the Full Project List, and are considered to be supported by this IRWM Plan.

Final IRWM Project Short List

#	Project, *Sponsor*	Primary Reason for Inclusion on Final IRWM Project List
1	Livestock & Land Program, *Coastal San Luis Resource Conservation District (CSLRCD) and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included for its multi-objective regional benefits and water quality enhancement while gaining private property owner volunteer participation for purposes of environmental stewardship.
2	LID Pilot Program, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included for its Low Impact Development (LID) public education and outreach, as well as providing monetary rebate incentives to private property owners to implement LID projects.
3	North County Fertilizer Regions_ Precision Agriculture, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included for its wide public educational value and regional water quality benefits through volunteer participation by private property owners with reduced fertilizer cost incentives.
4	Attiyeh Ranch Conservation Easement, *Land Conservancy*	Included for public and environmental stewardship values; both resulting in the protection of the watershed and endangered flora and fauna species in the region.

#	Project, *Sponsor*	Primary Reason for Inclusion on Final IRWM Project List
5	Upper Salinas River Basin Water Conservation/Conjunctive Use Project, *Templeton CSD*	Included because of the multi-objective elements of improving recycled wastewater for higher beneficial use as a source for groundwater recharge and potable supplies in the Salinas River Underflow.
6	Community Based Social Marketing, *Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	Included due to its low cost high education value over a broad region, enlisting support of private property owners to take ownership of their environment, and improving sustainable farming and business practices.
7	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices, *Vineyard Team and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)*	The project is a teamed effort by two project sponsors. Included for its high public educational value and regional water demand reduction benefits over a critically impacted groundwater basin, and offers change in irrigation practices through volunteer participation by private property owners with reduced pumping cost incentives.
8	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction, *City of Paso Robles*	Included due to its maximizing existing supplemental water supplies in a critically impacted groundwater basin, and use as a conjunctive supply for drought protection and effects of climate change in the region.
9	San Miguel Critical Water System Improvements, *San Miguel CSD*	Included due to the Disadvantaged Community (DAC) need for critical water system improvements.
10	8th Street Upper Aquifer Well and Nitrate Removal Facility, *Los Osos Community Services District*	Included for its multi-objective values of managing a critical groundwater basin subjected to continuous degradation of water quality from septic systems (nitrates) and sea water intrusion, and the local collaboration between the agencies and public using a vetted management plan.
11	Los Padres CCC Center - Stormwater LID Treatment Project, *Morro Bay National Estuary Program*	Included for its multi-objective benefits of environmental stewardship, LID educational opportunities, and the conversion of private lands to restore a rich ecosystem of flora and fauna.
12	Oceano Drainage Improvement Project - Hwy 1 & 13th Street, *County of San Luis Obispo, Department of Public Works*	Included due to multi-objective elements of providing a DAC with health and safety along with water quality, groundwater recharge, and flood attenuation.
13	Lopez Water Treatment Plant Membrane Rack Addition, *San Luis Obispo County Flood Control and Water Conservation District*	Included due to increased use of existing surface water supplies and reduction in groundwater use in a constrained groundwater basin shared by multiple agencies and private well owners.
14	Recycle Water Distribution System Expansion, *City of San Luis Obispo*	Included due to increased recycled water use in a DAC with the benefit of reducing groundwater pumping in a constrained groundwater basin.
15	Pismo Beach Recycled Water Project, *Cities of Arroyo Grande, Grover Beach and Pismo Beach and the Oceano Community Services District*	Included due to increased recycled water use through construction of a recycled water treatment plant. Recycled water will be made available for the South County Sub-Region using the existing wastewater treatment facility and construction of a recycled water distribution system.

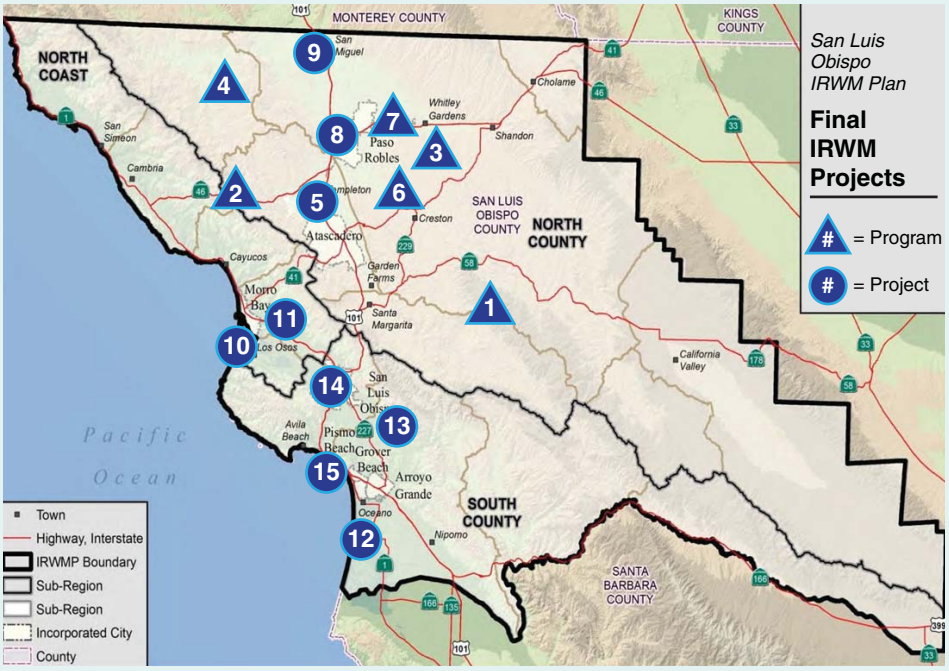
A detailed project analysis compiled as a Project Review White Paper (PWP) evaluated each project's strategic value in meeting the State Objectives and Resource Management Strategies, as well as the IRWM Plan's Water Management Strategies, and its Goals and Objectives. The PWP is a resource document developed for purposes of project selection and documenting detailed material to be used in populating the various IRWM Plan sections. The approach presented in the PWP will be to update and maintain a current project list as part of the IRWM Plan's implementation.

Geographic significance of project location is considered in project selection to ensure each Sub-Region is equally represented in the IRWM Plan. The map on the back page identifies the approximate location of the capital projects and programs (typically projects spread across large areas and are positioned at the approximate center of the benefit areas) included on the Project Short List.

NEXT STEPS

The concepts and projects presented in this brochure will be published in the 2013/14 IRWM Plan Update. The project list will be revisited upon DWR publishing the Prop 84 Round 3 IRWM Implementation Grant Funding Project Solicitation Package (expected in mid- to late-2014). At that time, the RWMG and Interested Stakeholders would conduct a solicitation, evaluate projects, and determine a competitive suite of projects suitable for that grant funding source, as needed. Project sponsors and stakeholders are also encouraged to seek other sources of funding. Thank you for helping the SLO County IRWM Region to implement projects and programs that continue to improve local water resources management.

Final IRWM Project Short List Project Locations



Thank you for your continued support and participation in the IRWM Plan development.

For additional information about the IRWM Plan Update and access to the electronic documents associated with this effort, visit:

http://www.slocountywater.org/

If you have any questions, please do not hesitate to call Carolyn Berg, *San Luis Obispo County Department of Public Works,* (805) 781-5536.

REGIONAL WATER MANAGEMENT GROUP

- San Luis Obispo County
- San Luis Obispo County Flood Control and Water Conservation District
- California Men's Colony
- Cambria Community Services District
- City of Arroyo Grande
- City of Grover Beach
- City of Morro Bay
- City of Paso Robles
- City of Pismo Beach
- City of San Luis Obispo
- Central Coast Salmon Enhancement
- Coastal San Luis Resource Conservation District
- Heritage Ranch CSD
- Land Conservancy
- Los Osos CSD
- Morro Bay National Estuary Program
- Nacimiento Regional Water Management Advisory Committee
- Nipomo CSD
- Oceano CSD
- Templeton CSD
- San Miguel CSD
- San Simeon CSD
- S&T Mutual Water Company
- Upper Salinas - Las Tablas Resource Conservation District

Prepared by GEI Consultants with support from Fugro Consultants, Dudek, Gutierrez Consultants, and Hollenbeck Consulting

G-2 Abstract forms, Project Objectives Worksheets, and Phase 2 Long Forms

Memo

To: Carolyn Berg

County of San Luis Obispo, Department of Public Works

From: Michael Cornelius

CC: Jonathan Goetz

Date: August 16, 2013

Re: San Luis Obispo Integrated Regional Water Management (IRWM) Plan Project Characterization, Solicitation and Prioritization Methodology White Paper

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Table of Contents

1. Project Characterization, Solicitation, and Prioritization Methodology 3
    1.1 Updated Approach to Project Characterization 3
    1.2 Task 1 - Concept and Project/Program Solicitation and Scoring 5
        1.2.1 Regional Project Solicitation and Review Process 5
        1.2.2 Phase 1b-Concept and Project/Program Objectives Worksheet 8
        1.2.3 Phase 2 Project Descriptions 9
        1.2.4 Overall Scoring for Both Concepts and Projects/Programs 9
    1.3 Task 2 - Final Evaluation and Project Selection for Grant Applications 11
        1.3.1 Formal Appeals Process 11
        1.3.2 Implementation Approach Category 1 – IRWM Regional Approach 11
        1.1.1 Implementation Approach Category 2 – Local Agency Funding Approach 13
    1.4 Task 3 - Biennial Project List Update 13
    1.5 Future IRWM Implementation Grant Opportunities 13

List of Figures

Figure 1-1. Irrigation Efficiency Building Blocks 4
Figure 1-2. Project Scoring and Ranking Process (Flowchart 1) 12
Figure 1-3. Project Update for Grant Process (Flowchart 2) 14

List of Tables

Table 1-1. Readiness to Proceed Scoring 10

Attachments

Attachment 1 – Project Abstract Form (Phase 1a)
Attachment 2 – Project Objectives Worksheet (Phase 1b)
Attachment 3 – Project Description "Long Form" (Phase 2)
Attachment 4 – Project Abstract Scoring Sheet (Phase 1a)
Attachment 5 – Goals and Objectives Worksheet Scoring Sheet (Phase 1b)
Attachment 6 – Worksheet Wizard and Help Screens
Attachment 7 – Helpful Information to Questions Asked on the Abstract Solicitation Form

1. Project[1] Characterization, Solicitation, and Prioritization Methodology

This white paper documents the updated approach to characterizing projects, and the solicitation and prioritization methodology adopted for purposes of collecting and ranking projects for the Updated 2013/2014 Integrated Regional Water Management (IRWM) Plan (Updated Plan). The Updated Plan differs from the adopted 2007 IRWM Plan by moving the focus of its content to Project Elements rather than the projects themselves. Project Elements are "building blocks" of region-specific activities derived from a thorough evaluation of the State's Resource Management Strategies (RMS) (See **Section F** of IRWM Plan), and applied local Water Management Strategies (WMS), which consist of activities to promote the Goals and Objectives of the Updated Plan.

1.1 Updated Approach to Project Characterization

An example of the "building blocks" concept can be applied to a water conservation project, say Reduce Water Demand through Irrigation Efficiency. **Figure 1-1** illustrates this concept by showing the "building blocks" of the Irrigation Efficiency project definition starting with how the project elements tie back to the DWR Statewide Objective of Reducing Water Demand. DWR has provided Statewide Objectives and the RMS to further assist the regions in defining their region-specific objectives by providing clear (and preferred) strategies. In the case of reducing water demand, RMS includes agricultural or urban water-use efficiency. The IRWM Plan has taken both the DWR Statewide Objectives and the RMS, and combined them into a single IRWM Plan WMS of Water Conservation (defined as applying across all water-use sectors). Project Elements then become the means to achieving the WMS of water conservation by:

1. Finding a funding mechanism for the project.
2. Including the project in a regional UWMP for region-wide implementation.
3. Ensuring that any water conservation project is written into drought management and supply interruption plans.

[1] Please note that the term "project," on its own, is used to infer concepts and projects/programs.

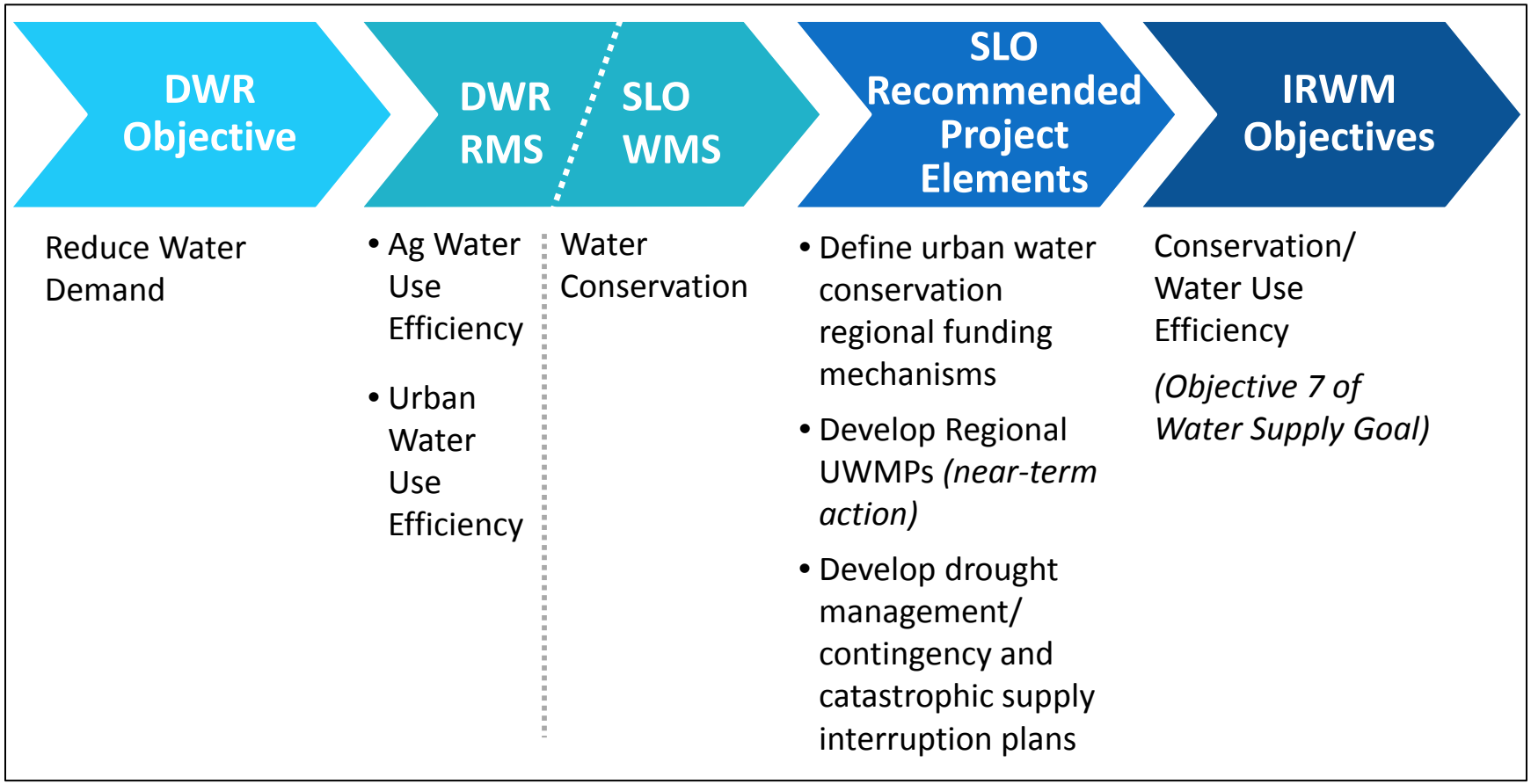


Figure 1-1. Irrigation Efficiency Building Blocks

In the manner described, the Irrigation Efficiency project is now fully defined by the Project Elements and the project meets the minimum requirement of satisfying one or more of the local IRWM Objectives (i.e., Conservation/Water use Efficiency). This change in approach to how projects and programs are characterized and incorporated into the Updated Plan ensures that the Updated Plan does not become stale as projects are implemented or fall off the list over time from lack of progress.

The Updated Plan seeks to provide an easily updated and manageable list of concepts and projects/programs. The Project Solicitation Process includes two phases of solicitation (Phase 1a and Phase 1b), followed by Final Evaluation and Selection, and updating of the project list, as shown in the following task outline:

Task 1. Regional Project Solicitation and Review Process
- a. Phase 1a: Abstract forms (for concepts and projects/programs)
- b. Phase 1b: Project Objectives Worksheet (for concepts and projects/programs only)
- c. Phase 2: Project Descriptions (for top ranking projects/programs only)

Task 2. Final Evaluation and Project Selection for Grant Applications
Task 3. Biennial Project List Update (or more often as needed)

The related documents will be housed in various sections of the IRWM Plan. Abstract forms, Project Objectives Worksheets, and Phase 2 Project Descriptions will be included in Appendix __. Certain information from these submittals will be used to populate summary discussions in IRWM Plan Sections __, __, __, and __. This ensures that even concepts or low ranking projects/ programs will still be memorialized in the IRWM Plan for consideration by stakeholders.

1.2 Task 1 - Concept and Project/Program Solicitation and Scoring

The following text briefly describes the solicitation phased process, the review and ranking methodology, the final evaluation and selection process, and the project list update process.

1.2.1 *Regional Project Solicitation and Review Process*

The first step in updating the IRWM Plan Project List is to conduct an IRWM region-wide project solicitation. This entails sending out notifications of the intent to update the IRWM Project List and subsequently collecting information on local concepts and projects/programs relevant to IRWM. There are two primary phases to collecting information: project abstract (Phase 1a) and objectives worksheets (Phase 1b); and full project description forms (Phase 2).

1.2.1.1 Phase 1a: Abstract Forms (for concepts and projects/programs)

First, the RWMG opens a project solicitation for stakeholders and accepts submittal of Phase 1a Abstract Forms. The Phase 1a Abstract Form, **Attachment 1**, is intended to solicit sponsors for all relevant concepts and projects/programs currently being considered throughout the

SLO County IRWM region. Phase 1a Abstract Forms collect basic information on concepts and projects/programs, and open up the opportunity for all project types regardless of their current status towards implementation. The forms do, however, provide a pass or fail screening to capture only those concepts and projects/programs in the Updated Plan which satisfy the following two sets of conditions:

Condition #1…**Is it IRWM Related?** Does it satisfy one or more of the questions below?

1. **Is it regional? (geographically, or has regional benefit)** – does the abstract show a wider project purpose and benefit that crosses land use and local political boundaries?

2. **Is it being sponsored or developed by multiple agencies?** – does the abstract provide evidence of the project having multiple-agency support or funding?

3. **Is it a multi-benefit project or program?** – does the abstract describe the project's complementary benefits with other projects, programs, or activities taking place (or planned), and/or does the project result in meeting multiple goals of the IRWM program?

4. **Is it a project supporting a critical water supply or water quality need within a Disadvantaged Community (DAC) boundary? (note: must serve within the DAC boundary)** – does the abstract describe the nexus between the project benefits, state identified DAC, and how the project helps to address critical water supply/quality needs of the DAC[2]?

Condition #2…Does it Include Related Goals? Does the project meet one or more IRWM Goals (i.e., Water Supply, Ecosystem/ Watershed, Groundwater, Flood Management and Water Management)?

The Project Management Team (PMT), comprised of District Staff and RWMG Working Group representatives, performs a preliminary review to determine if one or more of the questions are satisfied and then uses the Abstract Form information to initiate contact with the passing projects to complete Phase 1b of the solicitation process described below.

1.2.1.2 Review of Concepts

Concepts are initially reviewed based upon the submittal of a Phase 1a Abstract Form. Note: "Concepts" include high level ideas for improving local water resources, and/or projects/programs that are in the initial phases of planning and therefore have minimal documentation and study associated with them. The PMT performs an initial pass/fail scoring of the concepts using a formal review scoring sheet, **Attachment 4**. The scoring sheet also assesses the concept's alignment with the IRWM Plan's Goals to provide a means of organizing the concepts for further review in Phase 1b. Phase 1b Project Objectives

[2] The Proposition 84 State Grant Guidelines provide reference to a single map for the determination of what communities are defined as DAC: <http://www.water.ca.gov/irwm/grants/resourceslinks.cfm>.

Worksheets are used for scoring and ranking the concepts (optional for concepts, only if sponsor wants concept ranked). The scoring methodology (see **Section 1.2.4**) at this level is based on how well the concept aligns with the IRWM Goals and Objectives. The scoring uses the sponsor's description of how the concept meets the Objectives in order to determine level of benefit to each IRWM Goal. After the Phase 1b scoring (described under **Section 1.1.1.1**), Concept List review and ranking is complete at this point, as Concepts by their very nature do not have sufficient information available to score their relevance to the Updated Plan. The ranked Concept List will be included in the Updated Plan appendix.

Concepts in their earliest stages may not be able to adequately complete a Phase 1b worksheet, but would be left on the list unranked, in order to maintain potential future concepts to pursue.

1.2.1.3 Review of Projects/ Programs

Projects/programs are initially reviewed and ranked based upon the Phase 1a Abstract Form submitted. The PMT performs an initial ranking to score projects/programs that passed the screening test using a formal review scoring sheet, **Attachment 4** and **Attachment 5**. The scoring sheet assesses the project/program's alignment with the IRWM Plan's Goals to organize the initial project information for completion of Phase 1b. Phase 1b Project Objectives Worksheets are used for the overall scoring and ranking of the projects. The Phase 1b scoring methodology (see **Section 1.1.1.1**) at this level is based on how many Objectives a project/program meets and how well it aligns with the IRWM Goals.

To the extent possible, the scoring and ranking is an automated scoring process. The Automated Scoring Process takes place in the Excel spreadsheet environment using a VBA macro to read responses and score non-subjective categories where the response is clearly defined (e.g., yes or no). In some cases, the length and content of the response is scored and then adjusted based on an actual read by the PMT reviewers.

1.2.1.4 Phase 1a Concept and Project/ Program Abstract Scoring Methodology

The concepts and projects/programs that achieve a passing determination in Phase 1a (Project Abstract) described above, are screened through an automated scoring process applied to rate how well each concept and project/program meets the IRWM Goals, and by doing so, be able to categorize each concept and project/program. This scoring is used only as a means of focusing review on the best of the concepts and projects/programs and helping sponsors to see if the project fits well in the IRWM program; no ranking is performed and only forms that do not apply to the IRWM program are thrown out at this step in the review process.

The automation step includes:

- How well the concept and project/program aligns with the IRWM program.
- The primary focus of the project.

After the automation, each concept and project/program is reviewed to ensure it is

categorized correctly and that the provided information is consistent with the score achieved.

1.2.2 *Phase 1b-Concept and Project/Program Objectives Worksheet*

As noted above, "Concepts" include high level ideas for improving local water resources, and/or projects/programs that are in the initial phases of planning and therefore have minimal documentation and study associated with them. Concepts are set aside to be included in the IRWM Plan with the few selected project "concepts" highlighted as being good candidates for future IRWM projects, and may be good candidates for future planning grants when combined with identified projects/programs. The "Projects/Programs" list includes projects/programs that are further along in the planning, design, and/or implementation phases, and are therefore more "ready-to-proceed" and could be better candidates for more near-term IRWM Plan implementation.

The next critical step (Phase 1b) is moving the concept and project/program definitions through the determination of the exact translation of project benefits to the IRWM Goals and Objectives. As a required step in the grant development process, this information is necessary to the selection of the top ranking projects for inclusion in the 2013 IRWM Plan Update.

The project sponsors associated with the list of projects and programs are asked to complete a Phase 1b Project Objectives Worksheet (**Attachment 2**). Concept level project sponsors are invited to complete the Phase 1b Project Objectives Worksheet (**Attachment 2**), but are not required to do so. This would be completed if the concept sponsor would like to have its concept included on a ranked list of concepts.

The worksheet lists all IRWM Plan Objectives, requests that the sponsor indicates which objectives are met by their project, and provides a brief description of how that objective is met. This allows the PMT to understand how the applicant sees the project relating to specific IRWM Plan Objectives, which will facilitate more accurate scoring as described in **Section 1.1.1.1**.

Upon receiving and scoring the Project Objectives Worksheet, the resulting Phase 1 Project List is created to form the list of sponsors who are invited to participate in Phase 2 of the Project Solicitation Process.

1.2.2.1 Phase 1b Goal and Objectives Scoring Methodology

Scoring of the concepts and programs/projects for purposes of ranking is accomplished by how many of the Project Objectives Worksheet questions are fully populated by the sponsor and the related subject matter of the response. In an effort to keep the scoring simple and equitable across all five IRWM goals, each goal is given a total score of 20 points. Each Objective in the Goal is given the fraction of points assigned to each objective to equal the score of 20 points. For example, the Water Supply Goal has ten (10) Objectives, so each Objective has a point value of 20 divided by 10 or 2 points per objective.

Concepts or projects/programs that respond to a specific Goal's Objective are also

immediately given a Goal point of 5 as a means of tracking how the project offers cross-goal benefits. The sum of Goal Points (maximum of 25 points for 5 Goals) is added to the sum of Objective Points to achieve the total Goal and Objectives score for the project (see **Attachment 5** Phase 1b Project Objectives Scoring Sheet).

1.2.3 *Phase 2 Project Descriptions*

1.2.3.1 Phase 2 Readiness-to-Proceed Categorization

The final step before selecting Phase 2 Project List, is to determine "readiness to proceed". Each project or program is compared to the questions shown in the table below (concepts are not included in this step). Please note that the points system is to help guide the PMT during review; however, the results are simply reported as "high", "medium", and "low" categorizations.

1.2.3.2 Phase 2 Project Ranking

Projects/programs identified in Phase 1b are reviewed and ranked, considering the Phase 1b scoring as well as the readiness-to-proceed categorization, as described in **Section 1.1.1.1** and **1.2.3.1**. The resulting top-ranked projects/programs are requested to submit Phase 2 Project Descriptions, or "long forms," included as **Attachment 3**. The long form is an in-depth description of the project/program, its benefits, the economics analysis performed on the project, how the project aligns with State IRWM strategies and requirements, local IRWM Plan Objectives, etc. For that reason, only the top-ranked projects, which are more likely to be used to develop competitive grant applications, are asked to develop this information to be included in the Updated Plan, even if they are considered as ready to pursue grant funding at the present time.

The PMT works closely with the top-ranked projects to support their completion of the long form (see **Attachment 3**). Given the expected level of effort and budget for PMT support in the Phase 2 project submittals, the number of projects included in the Phase 2 Project List is approximately 20 percent of the total projects submitted or 10 projects, whichever is smaller. Direction from the RWMG will help to guide the number of projects/programs ultimately collected at Phase 2.

Other project sponsors not among the top-ranked list are encouraged to submit Project Descriptions, but are not required and the long forms may not be reviewed as part of the Updated Plan. All Project Description long forms are to be kept on file; however, and reviewed when the RWMG decides to develop a future grant proposal.

1.2.4 *Overall Scoring for Both Concepts and Projects/Programs*

One last step in scoring the concept and project/program is the response to the following three questions:

1. Does the Concept and project/program have multi-agency support or sponsorship? (If yes, score of 5)

2. Is the Concept Regional or Inter-Regional (i.e., includes adjacent IRWM Areas)? (If yes, score of 5)
3. Does the Concept support a DAC? (If yes, score of 5)

Table 1-1. Readiness to Proceed Scoring

Readiness to Proceed Factor Considered	Question Considered	Basic Scoring	Overall Characterization by Score
Timeliness	Do project partners have the ability to act quickly to implement the project or program without the need for new agreements or additional funding?	5 – Immediate, < 1 year 3 – Near Term, 1-3 years to develop 1 – Mid Term, 3-6 years to develop 0 – Long Term, > 6 years to develop	**High (18-25)** **Medium (10-17)** **Low (0-9)**
Technical Feasibility	Does the project have technical documentation to evaluate the technical feasibility of the project?	5 – Provides detailed documentation, including reconnaissance, and feasibility studies and completed engineering designs 3 – Shows to be partially documented, and has reconnaissance, and/or feasibility studies, but incomplete or partial designs 0 – The project is not well documented, does not have reconnaissance, and/or feasibility studies and has not been designed.	
Environmental Compliance	Does the project have environmental documentation and clearance?	5 – Existing studies and completed environmental documents. 3 – Some studies or plans to complete studies; A clear plan to complete environmental documentation. 0 – The project is not well-documented, does not have reconnaissance and/or feasibility studies and has not been designed.	
Permitting	Does the project have permits or a plan to obtain permits?	5 – Permits are obtained or are in the process 3 – Permit requirements are known and there is a plan and schedule in place. 0 – Permit requirements are not known and there is no plan or schedule.	
Funding	Are the project funding sources well defined?	5 – Financial plan and commitments are well defined; clear resource commitments to maintenance and operations 3 – Financial plan under development; required rate payer and/or funding agency approval; no defined resource commitments to maintenance and operations. 0 – No financial plan and commitments established; no resources defined for maintenance and operations.	

Because the answers to these questions are important in the DWR IRWM Guidelines and grant preparation effort, all three questions are weighted heavily to place projects in the affirmative higher on the list supplementing the Goals and Objectives scoring described above. At this stage, the concepts and projects are ranked for purposes of a combined Project List, including all concepts and projects/programs, and submitted to the Region's Stakeholders for public comment. The Project List will be reviewed and adopted by the RWMG prior to progressing to Phase 2.

1.3 Task 2 - Final Evaluation and Project Selection for Grant Applications

As noted in Flowchart 1 below, project sponsors have various possible implementation approaches available in order to move forward with project/program implementation. Some of these approaches are IRWM Plan-supported, while others are Local Agency-supported. The ranked Project List will be used when the RWMG determines a suite of projects/programs eligible for potential grant funding applications.

1.3.1 *Informal Appeals Process*

During the RWMG review, the group will make sure to confirm that consensus is developing or that disagreements are properly identified, discussed, and resolved. In the event of disagreements, if unresolved, they will be stated in writing so that disagreements are clearly defined and so that decision makers are properly informed during final plan approvals or in the event of a need for a formal hearing to resolve the disagreement (see formal appeals).

1.3.2 *Formal Appeals Process*

Please refer to the RWMG Memorandum of Understanding Article 4.5 "Decision Making", which establishes a formal appeals process.

1.3.3 *Implementation Approach Category 1 – IRWM Regional Approach*

IRWM-supported projects/programs likely to be included in a regional IRWM grant application are high ranking projects/programs with the needed documentation and multi-agency support, but may be lacking adequate funding in-place to implement the project or would benefit from IRWM grant funding. This implementation approach category seeks projects/programs with a high readiness-to- proceed and generally requires the RWMG to group the project with other projects into a cohesive, competitive IRWM grant funding implementation proposal where synergies can be shown through construction of the suite of projects/programs. This category of project requires the highest level of scrutiny to ensure the project adds a high degree of value to a grant proposal and creates synergies amongst other high ranking projects. Selection of these projects is based on how well the projects can be combined to create a winning grant proposal.[3]

[3] This process is intended to offer the maximum amount of flexibility to allow the RWMG leeway to determine the best suite of projects for a given grant source.

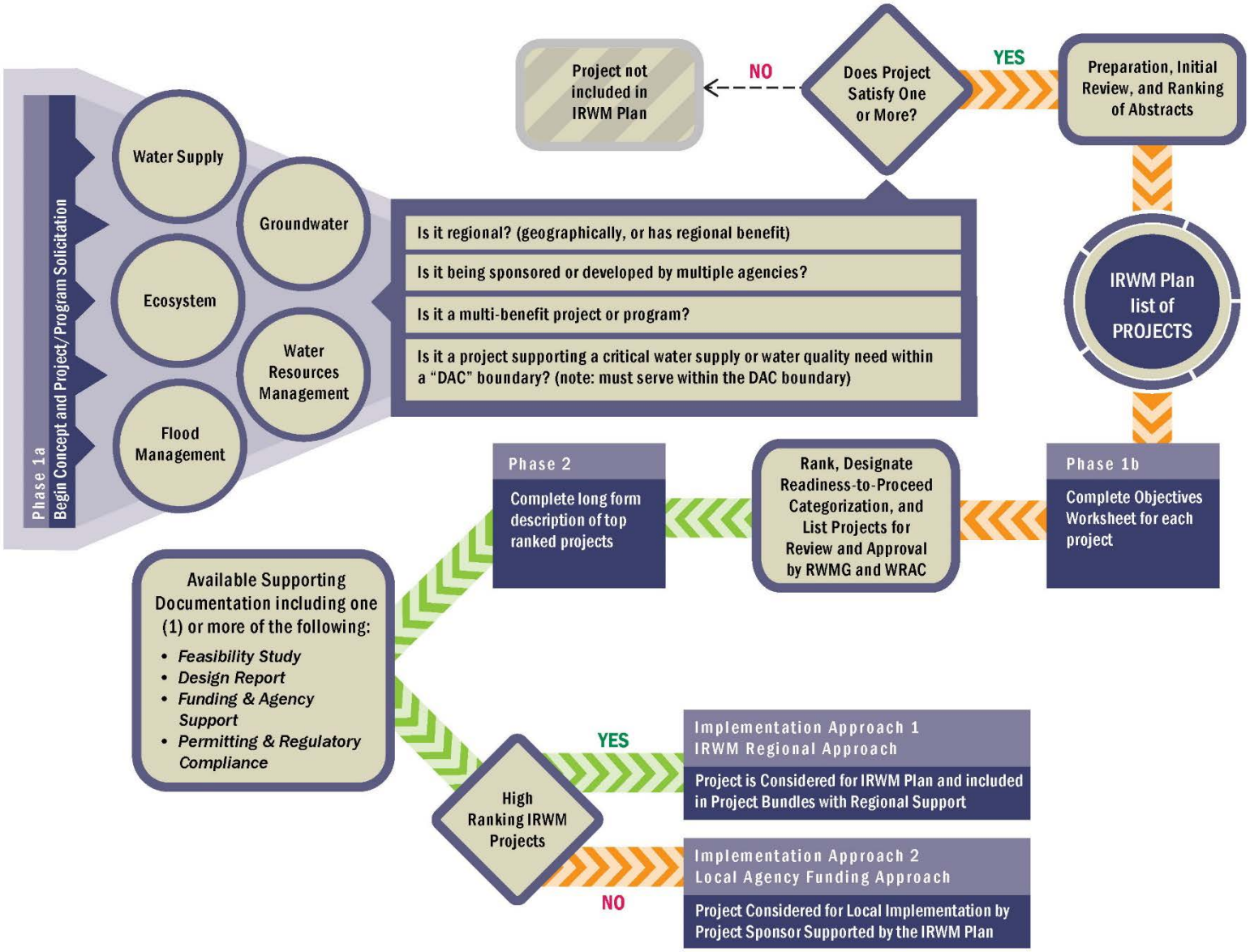


Figure 1-2. Project Scoring and Ranking Process (Flowchart 1)

1.3.4 *Implementation Approach Category 2 – Local Agency Funding Approach*

The second implementation approach requires local agencies or organizations to champion an effort to seek local funding and/or other grant funding sources outside of the IRWM program, in order to ensure project/program implementation. This might be well-suited for lower ranking projects/programs or single agency projects with limited regional benefits. These projects/programs have a high level of sponsorship from the IRWM Plan (being included on the Project List) that requires the agency to seek other funding mechanisms such as non-IRWM state grant programs or loans. The project sponsor is asked to complete the grant proposal without County support to allow other regional projects to be developed to their fullest.[4]

1.4 TASK 3 - BIENNIAL PROJECT LIST UPDATE

As part of Plan implementation, the project list will be updated on a biennial basis (or more often if needed) to keep the list of projects included in the Plan current. The project solicitation process described above will be used to update the project list. The ranking order of the top projects is published as part of the Updated Plan with future IRWM implementation grant opportunities offered to the top projects/ programs best suited, and so on down the list.

If the region creates an online database, concepts, projects and programs can be submitted, and/or existing concepts, projects and programs can be updated, between solicitation periods. These submittals would not be scored and ranked until the next Biennial Project List Update.

1.5 FUTURE IRWM IMPLEMENTATION GRANT OPPORTUNITIES

If future IRWM implementation grant guidelines differ from the previous 2012 guidelines, additional information is requested of the top ranking projects (See **Flowchart 2** below) of both concept and project/program implementation categories, and all projects are ranked again to account for the new requirements. If there are insufficient projects on the list, as determined by the RWMG, the top ranking concepts are solicited to resubmit an abstract to update the available information. Projects that are included in a grant proposal that do not win remain on the list for future IRWM grant opportunities. If all top-ranked projects are exhausted, a new call-for-projects is approved by the RWMG and this same process and ranking methodology is applied.

[4] It is important to note that an IRWM grant proposal is about bringing a set of projects together to achieve the highest level of scoring based on the grant guidelines.

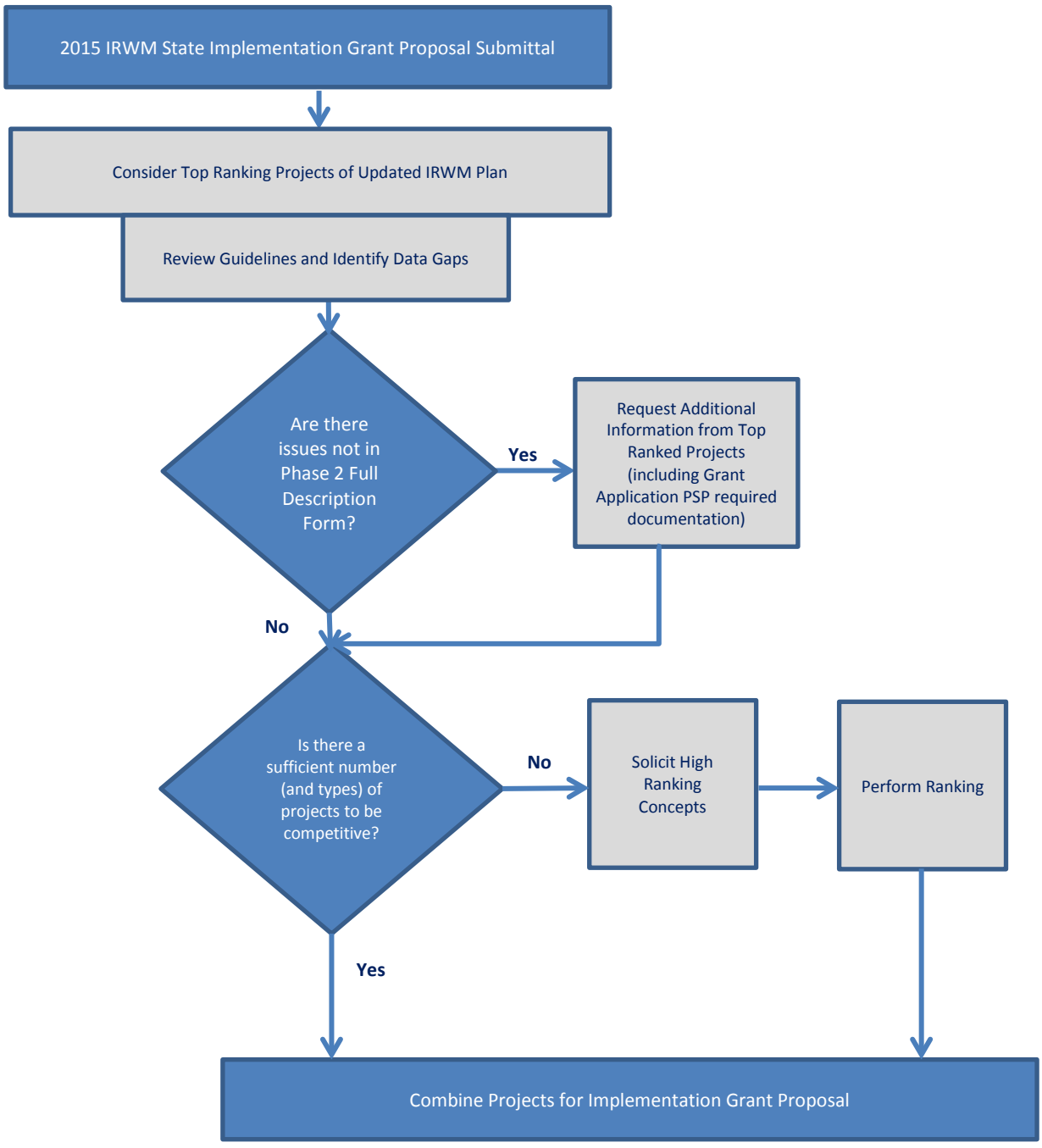


Figure 1-3. Project Update for Grant Process (Flowchart 2)

Attachments

Attachment 1 – Project Abstract Form (Phase 1a)

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project/Program Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than July 31, 2013

PROJECT/PROGRAM ABSTRACT

The project abstract is essentially a first step in the project submittal process. The IRWMG will use this information to provide feedback and ask questions prior to the project applicant submitting the full project solicitation form.

General Project/Program Information

The following will provide the project title, lead agency and estimated cost.

Project/Study/Program Title:	
Sponsoring Agency/Organization:	

Project/Program Proponent Information

The following will provide the essential contact information.

Contact Name:	
Affiliation:	
Address:	
Phone Number:	
Email:	

Will this project involve partnerships with other agencies or a neighboring IRWM region?	Yes	No	Maybe
(Enter "X" under applicable response)			

Project/Program Description

The following will provide a brief project description and why the project is necessary.

Provide a Brief Project/Program Description (1 to 2 sentences):

Describe Need for Project/Program (1 to 2 sentences):

Project Website (if any):	

Project/Program Location

The following will help in locating and grouping projects benefiting the same regions.

Subregion (Click Here to See Map):	Regional (2 or 3 Sub-Regions)	North Coast	North County	South County
(Enter "X" under applicable Subregion)				
If Regional, please indicate which regions or Sub-Regions:				
Nearest Cross Street or Street Address:				
Land Use (e.g., urban, ag, rural residential etc.) (See Map on Internet):				
Watershed (if known) (Click Here to See Map):				

General Project/Program Information

The following will help in quickly defining the breadth of the project.

Project Cost Range:	<$250K	$250K-$500K	$500K-$1M	$1M-$5M	>$5M
(Enter "X" under applicable cost range)					
Project Cost (if known):					
Source of Cost Estimate:		Agency	Engineer	Contractor	Other
Project Status:		Conceptual	Planning Phase	Design Phase	Ready for Implementation
(Enter "X" under applicable project phase)					
Describe status of permitting (include est. dates, if available):					
Describe CEQA/NEPA Compliance Status (include est. dates, if available):					
Estimated Project Start Date (MM/DD/YYYY):					
Estimated Project End Date (MM/DD/YYYY):					
Identify proposed funding sources:					
What is the Percent Range of Matching Funds?		<10%	11%-25%	26%-50%	>51%
(Enter "X" under applicable Percent Range)					
Does the Project Serve a Disadvantaged Community (DAC)?	None	Oceano	San Simeon	San Luis Obispo	San Miguel
(Enter "X" under applicable DAC)					

Project/Program Benefits

The following benefits will help in understanding the project relationships with the IRWM Plan's Goals and Objectives, and the individual Sub-Region Priorities.

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?	
Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?	
Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility siting, system reoperation, drought preparedness, water transfers, etc.)?	
Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to surface or groundwater)?	
Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reduction, instream flow management, etc.)?	
Does the Project/Program improve groundwater management (e.g., Adjudication of groundwater basin and threat of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?	
Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?	
Does the Project/Program improve water resource management (and outreach (e.g., public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?	
Does the Project/Program address water-related needs of a disadvantaged community and/or tribal land (e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?	
Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?	

Other

The following are additional questions to help in finding project synergies and additional benefits.

Will this project involve partnerships with other agencies or a neighboring IRWM region?	Yes	No	Maybe
(Enter "X" under applicable response)			

If yes or maybe to above, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Attachment 2 – Project Objectives Worksheet (Phase 1b)

Directions (Ctrl-X for interface or):
1. Mark an "X" next to the objectives your project meets.
For any objectives marked, please include a 1-2 sentence description on how the project meets that objective.

SAN LUIS OBISPO COUNTY IRWM Plan Project Objectives Form

Due September 6, 2013

Check Box	Goals and Objectives	Description (1-2 Sentences)
	Water Supply Goal	
	Maintain or improve water supply quantity and quality for potable water, fire protection, ecosystem health, and agricultural production needs. Cooperatively address limitations, vulnerabilities, conjunctive use and water use efficiency.	
	Water Supply Objectives	
	1. Maximize the accessibility to existing and supplemental water supplies in the Region through the utilization of existing infrastructure and development of new infrastructure and agreements.	
	2. Provide adequate and sustainable water supplies and infrastructure to address water deficiencies in all communities, including disadvantaged communities and designated low income census blocks.	
	3. Support sustainable potable water supply programs for rural residents.	
	4. Support sustainable water quality and supply programs for agriculture.	
	5. Support projects aimed to improve existing public water systems to meet State and Federal Drinking Water Quality Standards.	
	6. Develop and implement water management plans in communities of all sizes and water uses consistent with CWC requirements and accounting for environmental water needs.	
	7. Develop and implement conservation programs, measures and practices to increase water use efficiency in all water use sectors in order to maximize water supplies.	
	8. Plan for potential regional impacts of greenhouse gas emissions, climate change and droughts on water quantity and quality.	
	9. Diversify water supply sources, including the use of recycled and desalinized water.	
	10. Support watershed enhancement projects and programs to increase available water supplies to the Region.	
	Ecosystem and Watershed Goal	
	Maintain or improve the health of the Region's watersheds, ecosystems, and natural resources through collaborative and cooperative actions, with a focus on assessment, protection, and restoration/ enhancement of ecosystem and resource needs and vulnerabilities.	
	Ecosystem and Watershed Objectives	
	1. Develop watershed plans or other methods to determine the existing conditions and critical issues of each watershed or water planning area.	
	2. Preserve, enhance, restore and conserve riparian corridors and natural creek and river systems through wetland restoration, natural floodplains, riparian buffers, conservation easements, and other mechanisms to protect water supplies.	
	3. Increase watershed management activities (e.g., education, BMPs, monitoring, etc.) to reduce or prevent point and non-point source discharges of contaminants to surface water and groundwater resources to reduce the potential for developing additional TMDLs.	
	4. Develop public involvement and stewardship programs for public lands and ecosystems.	
	5. Protect and recover threatened, endangered and sensitive species through habitat restoration, stream flow management, and fish passage restoration.	
	6. Reduce impacts of invasive species by removal and/or other management/control methods to promote healthy ecosystems.	
	7. Increase monitoring and promote research programs to obtain a greater understanding of the long-term effects of climate change and greenhouse gas emissions on the region's watersheds and ecosystems.	
	Groundwater Monitoring and Management Goal	
	Achieve sustainable use of the region's water supply within groundwater basins through collaborative and cooperative actions.	
	Groundwater Monitoring and Management Objectives	
	1. Develop groundwater management plans, including salt and nutrient management plans, or other methods to help understand groundwater issues and conditions.	
	2. Improve groundwater management with direct support of locally driven processes, including potential formation of groundwater management structures/ organizations for the purpose of implementing water supply and conservation plans, programs, and projects.	
	3. Develop and implement projects and programs to further basin management objectives of local basin Groundwater Management Plans or other objectives established under other methods used to define groundwater issues and conditions.	
	4. Work with local groundwater governance bodies in the development of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program for groundwater basins in the region where plausible.	
	5. Evaluate and implement groundwater recharge and/or banking programs or efforts to increase the conjunctive use opportunities within the region, where technically feasible and cost-effective.	
	6. Protect and improve groundwater quality from point and non-point source pollution, including geothermal contamination and seawater intrusion.	

Project Objectives Worksheet (Phase 1b), Continued

SAN LUIS OBISPO COUNTY IRWM Plan Project Objectives Form		
Due September 6, 2013		
Check Box	Goals and Objectives	Description (1-2 Sentences)
Flood Management Goal		
Foster an integrated, watershed approach to flood management and improved stormwater quality through collaborative community supported processes in order to ensure community health, safety and to enhance quality of life.		
Flood Management Objectives		
	1. Understand flood management needs per watershed or water planning area.	
	2. Promote the implementation of Low Impact Development projects and practices to reduce storm runoff to protect infrastructure and property from flood damage.	
	3. Integrate stormwater controls, drainage and flood control structures into development projects and/or floodplain restoration to enhance natural groundwater recharge.	
	4. Improve flood control infrastructure and operations and flood management strategies to reduce frequency of downstream flooding, improve water quality, and reduce upstream erosion and downstream sediment accumulation.	
	5. Develop and implement flood management and water storage.	
	6. Develop and implement flood control projects that ensure health and safely and simultaneously protect, restore, and enhance the functions of rivers, creeks, streams, and their floodplains.	
	7. Support the adequate protection of disadvantaged communities from flooding without unfairly burdening communities, neighborhoods, or individuals.	
Water Resources Management and Communications Goal		
Promote open communications and regional cooperation in the protection and management of water resources, including education and outreach related to water resources conditions, conservation/ water use efficiency, water rights, water allocations, and other regional water resource management efforts.		
Water Resources Management and Communications Objectives		
	1. Provide consistent, consolidated and informative public outreach on the coordination of IRWM implementation projects and water resources programs.	
	2. Seek funding for IRWM implementation without unfairly burdening communities, neighborhoods or individuals.	
	3. Actively support and promote local control in addressing water resource issues through establishing stakeholder groups, working with local groundwater governance bodies, and partnering with governance bodies, and partnering with cities, community services districts and other water purveyors when possible.	
	4. Consider property owner rights, existing water supplies and cultural values in the planning and implementation of IRWM projects and programs.	
	5. Support efforts by the State, local agencies, water purveyors and local groundwater governance bodies to align efforts to protect and manage water resources.	
	6. Seek opportunities for water management collaboration between urban, rural, and agricultural interests.	
	7. Provide support and promote education for the participation of disadvantaged communities in the development, implementation, monitoring, and long-term maintenance of water resource management projects.	
	8. Promote public education programs for groundwater management, watershed protection, conservation, flood management, and water quality.	

Attachment 3 – Project Description "Long Form" (Phase 2)

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 1 - PROJECT OVERVIEW: Project Overview provides the essential contact information and project description.

General Project Information				
Project Title:				
Project Location:				
Sponsoring Agency/Organization:				
Subregion		North Coast	County	South County
(Enter "X" under applicable Subregion)				
Estimated Cost:	$0			
Project Website (if any):				

Project Proponent Information	*The following requests the Project Sponsor's contact information.*
Contact Name:	
Affiliation:	
Address:	
Phone Number:	
Email:	

Other participating agencies/organizations (if applicable):

Is the sponsor of this project in a position to financially assist the community, benefitting from the project but may have limited financial resources, to help develop a collaborative project? If yes, please explain.

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

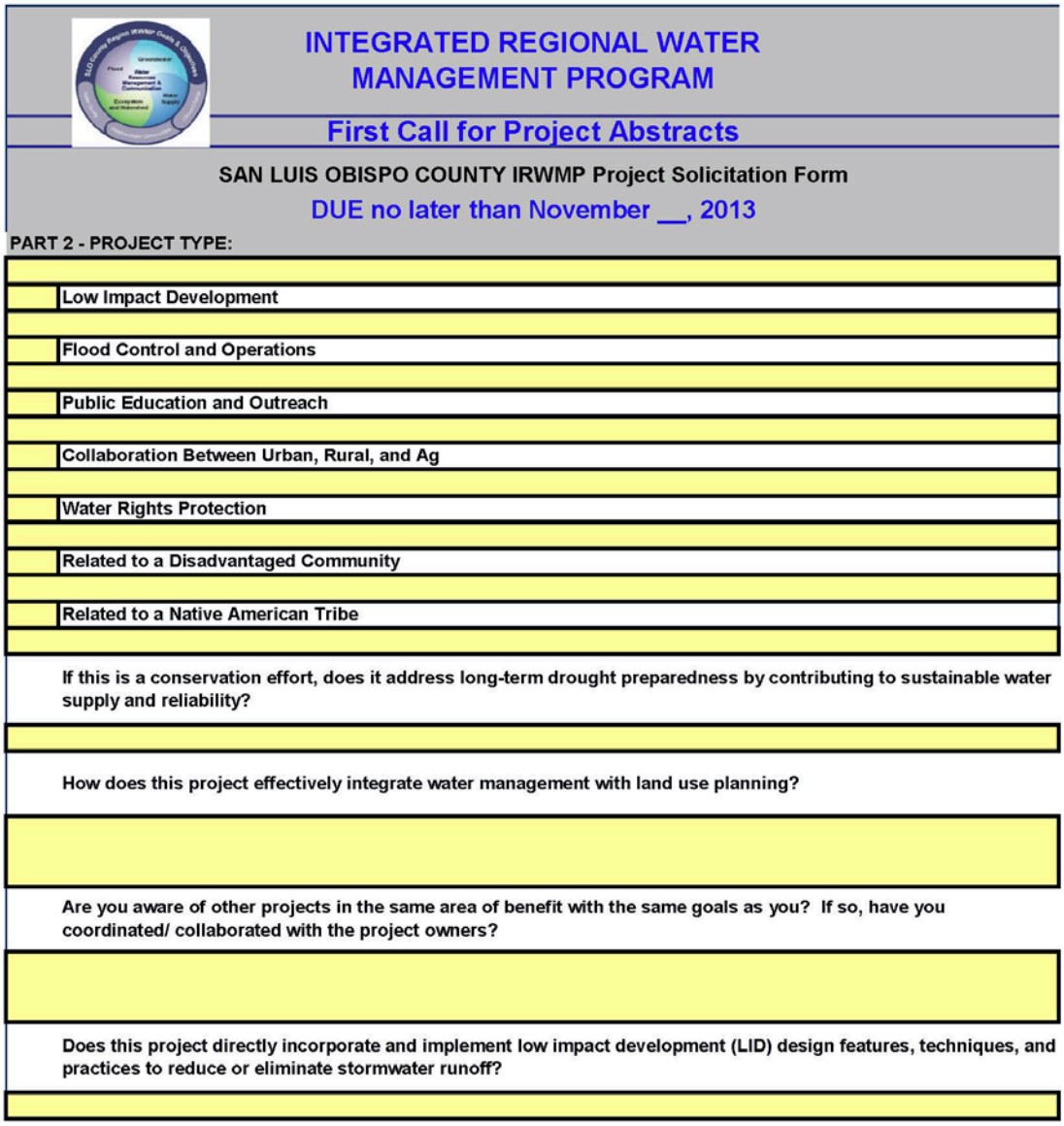
PART 2 - PROJECT TYPE:

Regional Project Category		
Is the project an element or phase of a regional or larger program?	**Yes**	**No**
(Place an "X" in which applies)		

Project Types (check all project types that apply and provide a brief explanation)	
	Water Supply Availability
	Water System Improvements
	Water Reuse/Recycling/Desalinization
	Water Use Efficiency
	Water Supply Sustainability
	Improved Watershed Understanding
	Reduce Point and Non-Point Contaminants
	Habitat and Endangered Species Protection and Restoration
	Address Climate Change
	Improved Groundwater Basin Understanding
	Groundwater Management
	Implementation of Adopted GMP BMOs
	Improvements to CASGEM Groundwater Monitoring Program
	Groundwater Recharge
	Conjunctive Use and Groundwater Banking
	Flood Management and Protection

Round 2 Implementation Solicitation
File Path: C:\My GEI Work Folder\San Luis Obispo IRWMP\1_SLO IRWM Local\Task 5 Project Ranking Criteria\Full Project Docs\
File Name: ProjSolicForm_Full Version 20130817.xlsm

Project Description "Long Form" (Phase 2), Continued



INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 2 - PROJECT TYPE:

- Low Impact Development
- Flood Control and Operations
- Public Education and Outreach
- Collaboration Between Urban, Rural, and Ag
- Water Rights Protection
- Related to a Disadvantaged Community
- Related to a Native American Tribe

If this is a conservation effort, does it address long-term drought preparedness by contributing to sustainable water supply and reliability?

How does this project effectively integrate water management with land use planning?

Are you aware of other projects in the same area of benefit with the same goals as you? If so, have you coordinated/ collaborated with the project owners?

Does this project directly incorporate and implement low impact development (LID) design features, techniques, and practices to reduce or eliminate stormwater runoff?

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 3 - DETAILED PROJECT INFORMATION: This worksheet collects detailed project information to understand its compatibility with the IRWM Plan. It covers information such as a full description, community needs, physical benefits, etc.

Project Description The following will provide the detailed project description. Any supporting data should be included as part of this Project Solication.

Please provide a full description of your project and its purpose. Include what will be constructed and/or implemented, and how the project will function.

What are the area(s) and/or entities that will be affected by or will benefit from the project.

Describe how this project meets the interests and mission of the implementing entity(ies).

Are there any potential obstacles to project implementation?

Other?

Project Need(s) Check applicable physical benefits and describe numerical goal(s) and monitoring program(s).

Please describe the most prominent need(s) or problem(s) that the project will address.

As applicable, discuss the need as it relates to the benefit category(ies) selected in the Project Abstract under Project Benefits. (e.g., increased water supply need, water system improvement need, environment benefit need, etc.).

Physical Benefits Physical benefits are quantitative benefits stemming from project implementation which can be monitored over time. Please provide brief explanation to those that apply.

Water Quality Benefits (e.g., quantifiable improvements to water quality)

Water Supply Benefits (e.g., quantifiable increase in water supply or improved water quality for ag, urban and rural uses)

Water Use Efficiency (e.g., quantifiable decreases in water demand for any or all water use sectors)

Water Reliability (e.g., quantifiable improvements in the availability of water in differing hydrologic conditions)

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 3 - DETAILED PROJECT INFORMATION: This worksheet collects detailed project information to understand its compatibility with the IRWM Plan. It covers information such as a full description, community needs, physical benefits, etc.

	Groundwater Management (e.g., quantifiable improvements in groundwater elevations or quality)
	Reduce Point and Non-Point Contaminants (e.g., quantifiable decrease in mass loading of nitrates to small watersheds)
	Endangered Species Protection (e.g., quantifiable improvements in population and mortality rates of certain wildlife species)
	Reduced CO2 emissions (e.g., quantifiable decrease in the mass loading of CO2 emitted to the environment)
	Community/Social Benefits (e.g., number of people every year who visit the project and benefit from its existence)
	Reduced Energy Benefits (e.g., quantifiable reduction in annual energy use)
	Other (e.g., other quantifiable benefits not listed above)

Regional Distribution of Benefits The following will provide how well the project distributes benefits amongst the critical needs in the region and approaches the IRWM Plan hollistically.

Does the project provide specific benefits to disadvantaged communities (DACs) and/or Native American tribal communities? If so, explain. Include how you would approach quantifying/demonstrating the degree of benefit.

Does the project distribute the benefits fairly over the region influenced by its implementation? If not, explain. Include how you would approach quantifying/demonstrating the degree of benefit to differing regions.

Discuss how the project addresses any known environmental justice issues (i.e., implementation of environmental laws, regulations, and policies)?

Does the project help to resolve water resources conflicts in the region (i.e., conflicts concerning water-rights, non-point pollution, TMDLs, etc.)?

Does the project increase awareness (e.g., education, outreach, forums, etc.) or personal contact (e.g., recreation, self-guided trails, etc.) with water resources issues within the benefited region? If so, please explain how the project will be introduced to the public including the expected benefit.

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 3 - DETAILED PROJECT INFORMATION: This worksheet collects detailed project information to understand its compatibility with the IRWM Plan. It covers information such as a full description, community needs, physical benefits, etc.

Technical Feasibility The following is critical to making a determination of feasibility by showing how well the project adheres to the objective or goal. Applicants should provide technical justification for the proposed projects claimed physical benefits. Regardless of the magnitude of

Discuss how the project was selected as the preferred alternative over other projects.

Describe alternative projects and the pros and cons with each.

Describe how this project is (or can be) integrated with other projects, creating synergistic regional benefits.

List all major project milestones (e.g., CEQA compliance, design, financial support, etc.) for the project, and the status of each (Note: Incomplete - Anticipated Completion Date, Percentage of Completion, or Completion)

To what degree is the project dependent on Proposition 84 grant funding? Describe how this project might be implemented if IRWM funding was not awarded in 2015.

Describe project impacts as defined by CEQA (note: if CEQA compliance has not been done, state your opinion of impacts), and the degree to which each impact will be mitigated.

Project Cost	The following summarizes known costs and econ studies (if estimates are available, please include copy as part of this workbook)	
Total Estimated Capital Cost		
Total Estimated Project Labor Costs		
Estimated Project Life Cycle (Project Life)		
Annual Project O&M Cost		
Cost Basis (Year)		
Project has annual O&M cost after the construction?	**Yes**	**No**
(Enter "X" under applicable response)		
Will the O&M cost be paid by the benefiting rate payers?	**Yes**	**No**
(Enter "X" under applicable response)		
Will the O&M cost be a new rate (or fee) or an increase to existing rate (or fee)?	**Yes**	**No**
(Enter "X" under applicable response)		
Have alternative methods been considered? What are the potential monetary savings for selecting one project over the other? For cost-effectiveness, applicants should first consider alternative ways or methods for achieving the same physical benefits as the proposed project.		
Explain how the project will reduce or minimize energy costs.		
Source(s) of Funding for Capital Cost		
Source(s) of Funding for O&M Cost		
If available, please provide the cost estimate as an attachment to the e-mail correspondence.	**Yes**	**No**
(Enter "X" under applicable response)		

Eligibility Criteria Per DWR requirements, all projects must show compliance with the following documents, if applicable.

Eligibility Criteria (check all that apply to this project).

	Groundwater Management Plan

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 3 - DETAILED PROJECT INFORMATION: This worksheet collects detailed project information to understand its compatibility with the IRWM Plan. It covers information such as a full description, community needs, physical benefits, etc.

	Urban Water Management Plan
	Water Meter Requirements
	Groundwater Monitoring Requirements
	AB 1420 Compliance
	BMP Compliance
	CEQA Compliance

Project Readiness

Proposed Project Start Date:	
Anticipated Construction Start Date:	
Anticipated Project Completion Date:	

Please indicate the status (pending [0% complete], in process, complete) of the following:

Project Element	Status	% Complete	Estimated Completion Date
Feasibility Study			
Preliminary design			
Land Acquisition/ Easements			
CEQA/NEPA			
Permit Acquisition			
Construction Documents			
Funding			
Readiness to Proceed (w/ construction)			

NOTE: Provide documentation for status of "in process" or "complete".

Economic Feasibility

Is the project considered to be the least cost alternative?	Yes	No
(Enter "X" under applicable response)		
Has a benefit:cost or cost effectiveness analysis been completed for your project?	Yes	No
(Enter "X" under applicable response)		

If yes, please cite reference and briefly summarize. If no analysis has been completed, briefly describe how you would approach conducting such an analysis.

If known, please provide the Benefit:Cost Ratio.	

If the benefits of the project cannot be monetized, explain why. Include whether the benefits can still be described and quantified.

Other project information that merits consideration:

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 4 - Statewide/ IRWM/ Califor This section lists the categories of projects

1	**Statewide Priorities (Put "X" in front of all that the project addresses)**
	Drought Preparedness
	Use and Reuse Water More Efficiently
	Climate Change Response Actions
	Expand Environmental Stewardship
	Practice Integrated Flood Management
	Protect Surface Water and Groundwater Quality
	Improve Tribal Water and Natural Resources
	Ensure Equitable Distribution of Benefits
2	**California Water Plan Resource Management Strategies (Put "X" in front of all that apply). (Please see page 42 of Proposition 84 and Proposition 1E Draft Guidelines dated August 2012.)**
	Reduce Water Demand
	Improve Operational Efficiency and Transfers
	Increase Water Supply
	Improve Water Quality
	Practice Resources Stewardship
	Improve Flood Management
	Other Strategies (Please Describe):
(other strategies includes crop idling for water transfers, dewvaporation, fog collection, irrigated land retirement, rainfed ag and transoceanic water bags)	
3	**Multiple Benefits (Put "X" in front of all that apply – at least one must be checked)**
	Water supply reliability, water conservation and water use efficiency
	Stormwater capture, storage, clean-up, treatment, and management
	Removal of invasive non-native species
	Creation and enhancement of wetlands
	Acquisition, protection, and restoration of open space
	Protection and restoration of watershed lands
	Non-point source pollution reduction, management and monitoring
4	**Multiple Benefits (cont'd) (Put "X" in front of all that apply – at least one must be checked)**
	Groundwater recharge and management projects
	Contaminant and salt removal through treatment technologies
	Conveyance of reclaimed water for distribution to users
	Water banking, exchange, reclamation and improvement of water quality
	Planning and implementation of multipurpose flood management programs

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 4 - Statewide/ IRWM/ Califor This section lists the categories of projects

	Watershed protection and management
	Drinking water treatment and distribution
	Ecosystem and fisheries restoration and protection
	Reduced Reliance on the Bay-Delta
5	**Exceptions to above (if none are checked):**
	Projects that directly address a critical water quality or supply issue in a DAC
	Urban water suppliers implementing certain BMPs as on page 17 of Guidelines

Project Description "Long Form" (Phase 2), Continued

INTEGRATED REGIONAL WATER MANAGEMENT PROGRAM

First Call for Project Abstracts

SAN LUIS OBISPO COUNTY IRWMP Project Solicitation Form

DUE no later than November __, 2013

PART 5 - CLIMATE CHANGE: Climate Change (Put "X" in front of all those that indicate to what extent the project contributes to climate change response actions)

a.	
	Increases Water Supply Reliability
	Advances/ Expands Conjunctive Management of Multiple Water Supply Sources
	Increases Water Use and/or Reuse Efficiency
	Provides Additional Water Supply
	Promotes Water Quality Protection
	Reduces Water Demand
	Advances/Expands Water Recycling
	Promotes Urban Runoff Reuse
	Addresses Sea Level Rise
	Addresses other Anticipated Climate Change Impact (e.g. through water management system modifications)
	Other (Please Describe):
b.	Ecosystem and habitat improvements by Reducing Greenhouse Gas Emissions and/or Energy Consumption (Put "X" in front of all that the project addresses)
	Improves Flood Control (e.g. through wetlands restoration, management, protection)
	Establishes Migration Corridors
	Re-establishes River-Floodplain Hydrologic Continuity
	Re-introduces Anadromous Fish Populations to Upper Watersheds
	Enhances and Protects Upper Watershed Forests and Meadow Systems
c.	Mitigation by Reducing Greenhouse Gas Emissions and/or Energy Consumption (Put "X" in front of all that the project addresses)
	Increases Water Use Efficiency or Promotes Energy-Efficient Water Demand Reduction
	Improves Water System Energy Efficiency
	Advances/Expands Water Recycling
	Promotes Urban Runoff Reuse
	Promotes Use of Renewable Energy Sources
	Contributes to Carbon Sequestration (e.g. through vegetation growth)
	Other (Please Describe):

Does the proposed project reduce regional greenhouse gas emissions and/or improve energy efficiency? If so, explain ho

Attachment 4 – Project Abstract Scoring Sheet (Phase 1a)

Phase 1a: Project Abstract Solicitation (Includes all Concepts, Projects and Programs)		Source Document: Abstract Worksheet	Project or Concept:	Project
Is it IRWM related? (Pass or Fail)	Place X			
Is it regional? (geographically, or has regional benefit)				
Is it being sponsored or developed by multiple agencies?				
Is it a multi-benefit project or program?				
Is it a project supporting a critical water supply or water quality need within a "DAC" boundary? (note: must serve within the DAC boundary)				
		Pass/Fail	Fail	

Attachment 5 – Goals and Objectives Worksheet Scoring Sheet (Phase 1b)

Phase 1b: Goals and Objectives Scoring (Includes all Projects/Programs that Submitted Goals and Objectives Worksheets)		Source Document: Goals and Objectives Worksheet	
Project Attributes?	Score		
Is there Multi-Agency support or sponsorship?	0		
Is the Concept Regional or Inter-Regional (i.e., includes adjacent IRWM Areas)?	0		
Does the Concept support a DAC?	0		
		Sub-Total	0

Related Goals? (Score 5 if Goal is satisfied)	Score		
Water Supply	0		
Ecosystem and Watershed Restoration	0		
Groundwater Monitoring and Management	0		
Flood Management	0		
Water Resources Management and Communications	0		
		Sub-Total	0

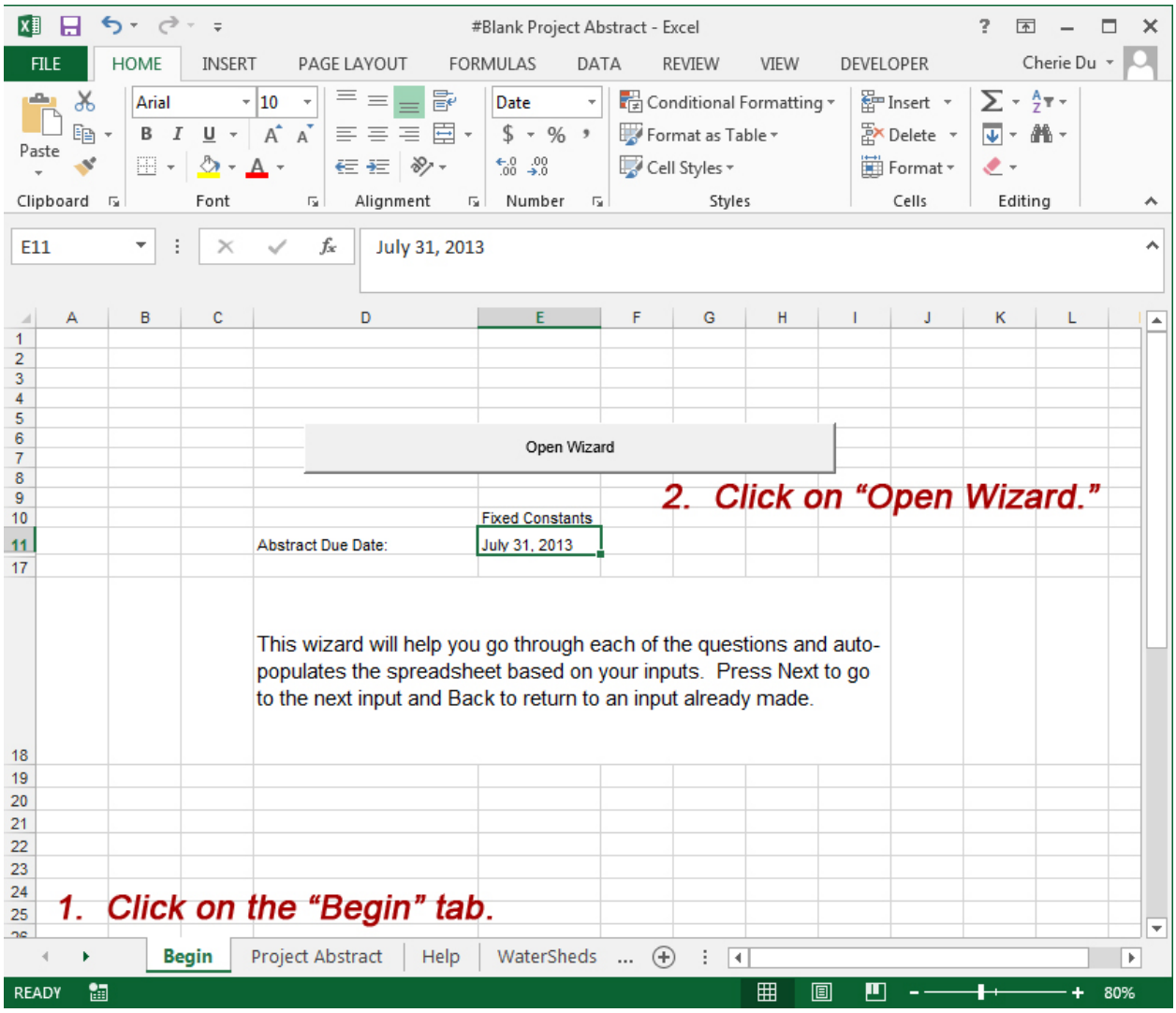
Goals and Objectives Scoring Sheet (Phase 1b), Continued

Related Objectives?		Objective Scoring	Objective Point Worth	Subtotal
Water Supply	1. Maximize Accessibility of Water		20/10 = 2	-
	2. Adequate Water Supply		2.00	
	3. Sustainable Potable Water for Rural			
	4. Sustainable Water for Agriculture			
	5. Water System WQ Improvements			
	6. Implement Water Management Plans			
	7. Conservation/Water Use Efficiency			
	8. Plan for Vulnerabilities of Water Supplies			
	9. Diverse Supply (Recycled, Desalination)			
	10. Support watershed enhancement			
Ecosystem and Watershed Restoration	1. Understand Watershed Needs		20/7 = 2.86	-
	2. Conserve Balance of Ecosystem		2.86	
	3. Reduce Contaminants			
	4. Public Involvement and Stewardship			
	5. Protect Endangered Species			
	6. Reduce Impacts of Invasive Species			
	7. Climate Change on Ecosystems			
Groundwater Monitoring and Management	1. Understand GW Issues and Conditions		20/6 = 3.33	-
	2. Support Local GW Management		3.33	
	3. Further Local Basin Management Objectives			
	4. CASGEM Program			
	5. Groundwater Recharge/ Banking			
	6. Protect and Improve GW Quality			
Flood Management	1. Understand Flood Management Needs		20/7 = 2.86	-
	2. Promote Low Impact Development		2.86	
	3. Enhance Natural Recharge			
	4. Improve Infrastructure and Operations			
	5. Implement Multiple Benefit Projects			
	6. Restore Streams, Rivers and Floodplains			
	7. Support DAC Flood Protection			
Water Resources Management and Communications	1. Public Outreach on IRWM Implementation		20/8 = 2.5	-
	2. Funding for IRWM Implementation		2.50	
	3. Support Local Control			
	4. Consider Property Owner Rights			
	5. Agency Alignment on Water Resources Efforts			
	6. Collaboration Between Urban, Rural, and Ag			
	7. DAC Support and Education			
	8. Promote Public Education Programs			
			Sub-Total	-

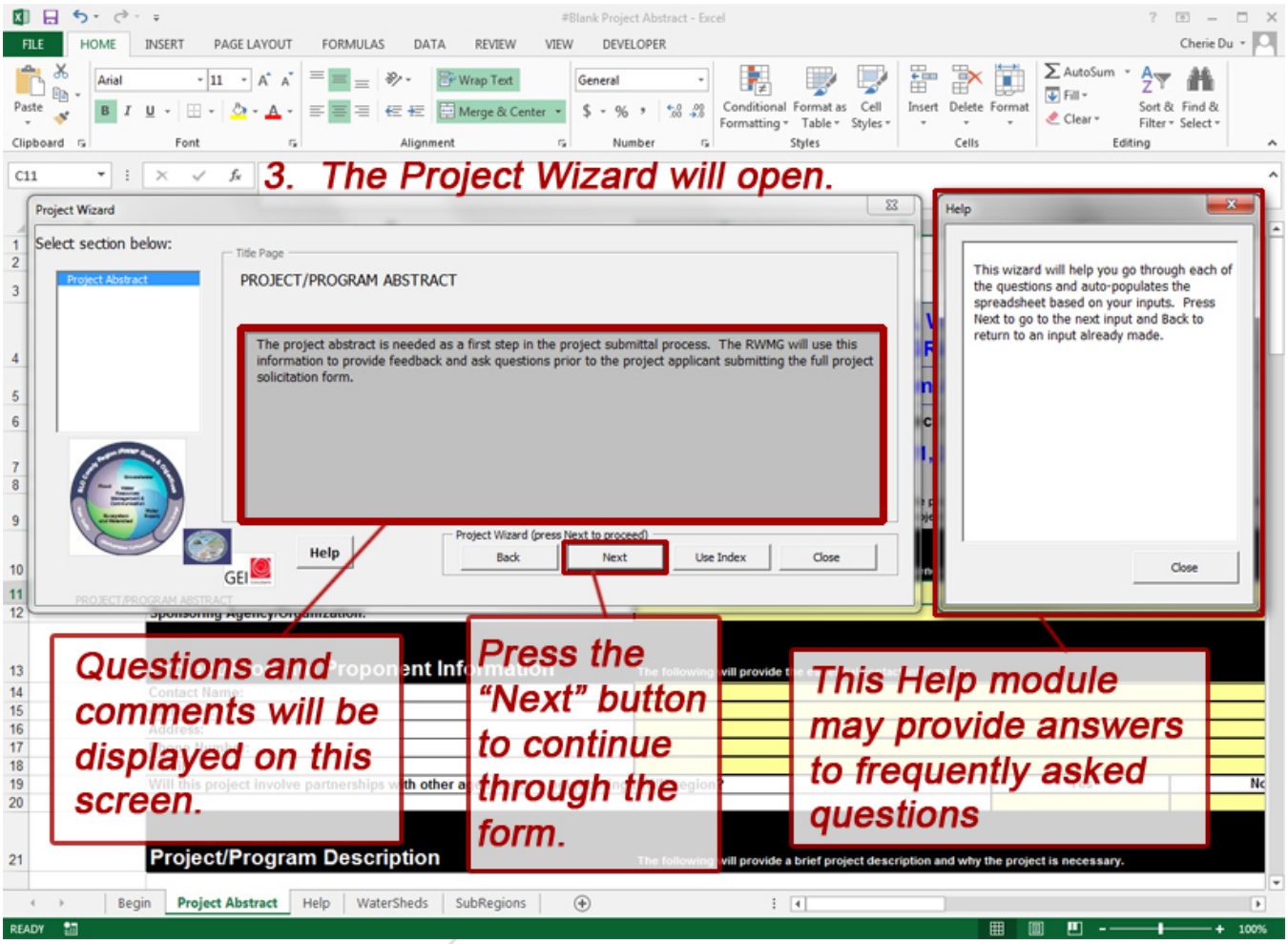
Goals and Objectives Scoring Sheet (Phase 1b), Continued

Project "Readiness to Proceed" Categorization			Source Documents: Abstract and Goals and Objectives Worksheet		
If Yes...			Score		
1. Timeliness	Do project partners have the ability to act quickly to implement the project or program without the need for new agreements or additional funding?				
	5	Immediate, < 1 Year.	0		
	3	Near Term, 1 - 3 Years to develop.			
	1	Mid-term, 3 - 6 Years to develop.			
	0	Long-term, > 6 Years to develop.			
2. Technical Feasibility of Project	Does the project have technical documentation to evaluate the technical feasibility of the project?				
	5	Provides detailed documentation, including reconnaissance, and feasibility studies and completed engineering designs.	0		
	3	Shows to be partially documented, and has reconnaissance, and/or feasibility studies, but incomplete or partial designs.			
	0	The project is not well documented, does not have reconnaissance, and/or feasibility studies and has not been designed.			
3. Environmental Compliance	Does the project have environmental documentation and clearance?				
	5	Existing studies and completed environmental documents.	0		
	3	Some studies or plans to complete studies; a clear plan to complete environmental documentation			
	0	There are no studies or completed environmental documentation.			
4. Permitting	Does the project have permits or a plan to obtain permits?				
	5	The permits have been obtained or are in the process.	0		
	3	The permit requirements are known and there is a plan and schedule in place.			
	0	The permit requirements are not known and there is no plan or schedule.			
5. Funding	Are the project funding sources well defined?				
	5	Financial plan and commitments are well defined; clear resource commitments to maintenance and operations.	0		
	3	Financial plan under development; requires rate payer and/or funding agency approval; no defined resource commitments to maintenance and operations.			
	0	No financial plan and commitments established; no resources defined for maintenance and operations.			
		Sub-Total	0	"Readiness to Proceed" Categorization	Not Ready

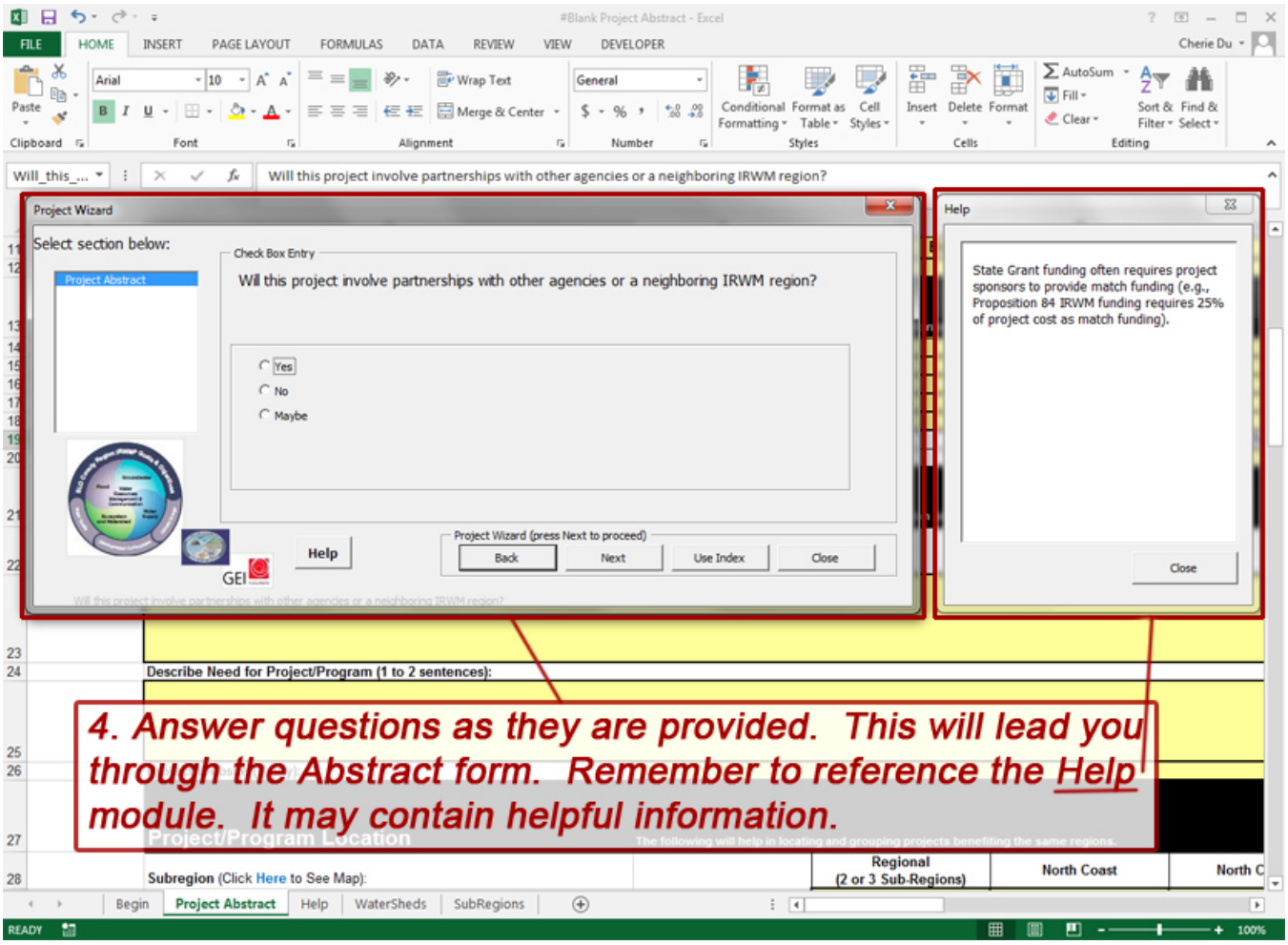
Attachment 6 – Abstract Wizard Tutorial



Abstract Wizard Tutorial, Continued

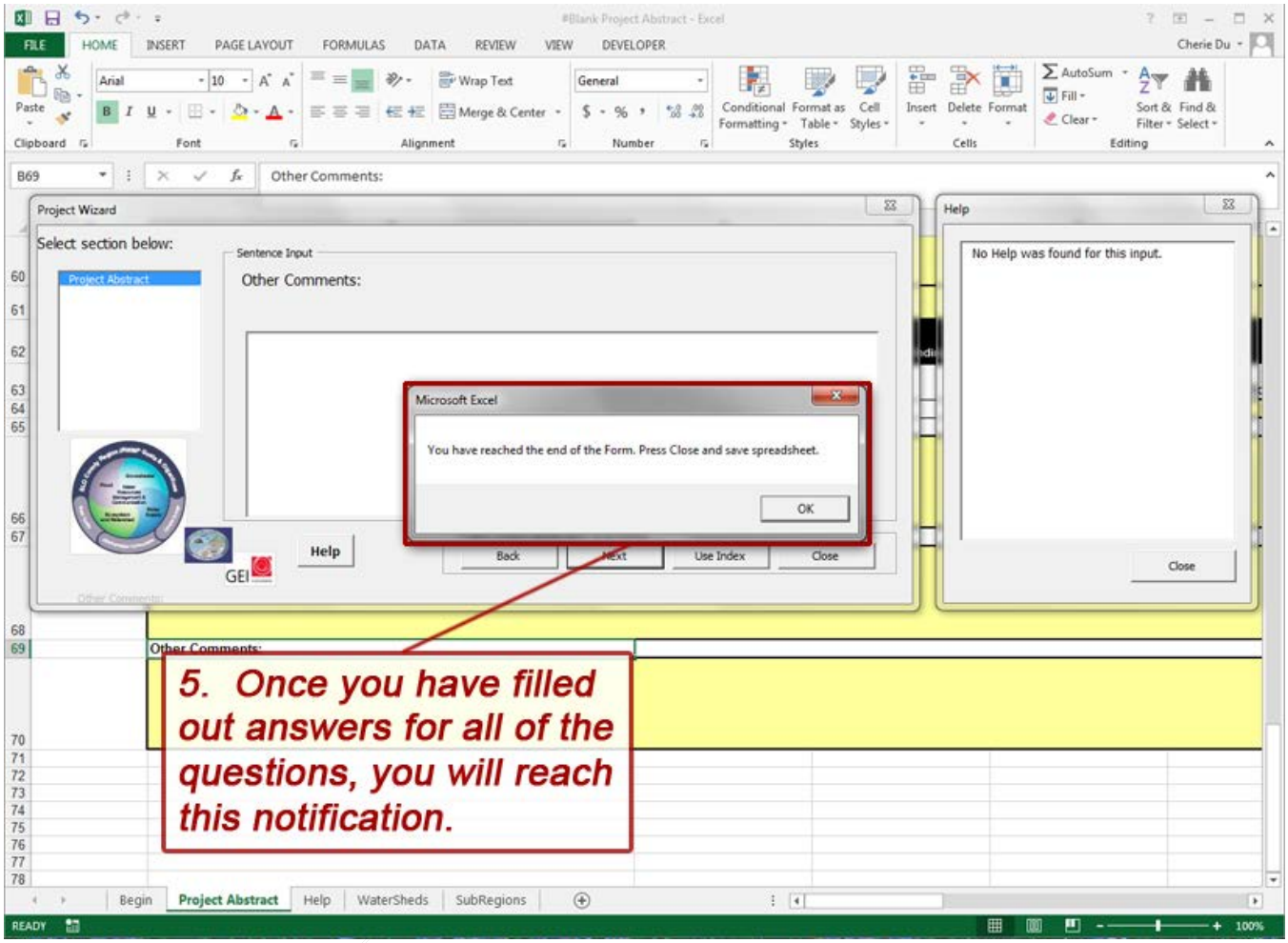


Abstract Wizard Tutorial, Continued



Abstract Wizard Tutorial, Continued

Now your form is completed! Please close the Project Wizard, review your information, and make any changes if necessary. Please be sure to save your document before exiting the application.



Attachment 7 – Helpful Information to Questions Asked on the Abstract Solicitation Form

Help is provided in the Project Wizard to assist users in answering certain questions or prompts in the Project Abstract form. For reference, the following questions or prompts and their help information have been extracted from the Wizard and provided on the table below.

Question/ Prompt	Help
Will this project involve partnerships with other agencies or a neighboring IRWM region?	State Grant funding often requires project sponsors to provide match funding (e.g., Proposition 84 IRWM funding requires 25% of project cost as match funding).
Source of Cost Estimate:	Identify who made the project cost estimate.
Project Status:	**Conceptual** A project/program concept has been formed in a public process but has not progressed beyond the idea stage. **Planning Phase** A project/program which has moved beyond conceptual with engineering and environmental feasibility studies completed. **Design Phase** A project/program which has been screened out as the preferred alternative on the basis of cost, environmental impacts, and level of benefit and has progressed into design. **Ready for Implementation** A project ready to go out for bid with a finished set of design plans, all permitting acquired and has approved CEQA/ NEPA certification.
Does the Project Serve a Disadvantaged Community (DAC)?	A DAC is defined by DWR as follows: "For the purposes of Proposition 84 funding, the PRC §75005.(g) defined a DAC as "a community with a median household income (MHI) less than 80% of the Statewide average."
Project Cost (if known):	Please provide an initial Engineer's Estimate.
Subregion (Click Here to See Map):	Regional refers to a project/program that benefits two or three of the sub-regions.
What is the Percent Range of Matching Funds?	State Grant funding often requires project sponsors to provide match funding (e.g., Proposition 84 IRWM funding requires 25% of project cost as match funding). This will help to indicate the level of certainty that your project/program will be funded.
Identify proposed funding sources:	Please describe the sources of funding currently available to complete the project/program. This can be user rates, state grants, private, etc.
PROJECT/PROGRAM ABSTRACT	This wizard will help you go through each of the questions and auto-populates the spreadsheet based on your inputs. Press Next to go to the next input and Back to return to an input already made.
Subregion (Click Here to See Map):	To view map goto SubRegions worksheet.
Land Use (e.g., urban, ag, rural residential etc.) See Map on internet:	To view map goto form and press on hyperlink.
Watershed (if known) (Click Here to See Map):	To view map goto WaterSheds worksheet.

G-3 Project Abstract Reports

Chorro Creek Ecological Reserve Floodplain Restoration Project

North Coast

Sponsoring Agency/Organization: **Morro Bay National Estuary Program**

Contact Name: **Adrienne Harris**

Affiliation: **Morro Bay National Estuary Program**

Address: **601 Embarcadero, Suite 11_ Morro Bay, CA 93442** Phone Number: **(805)772-3834**

Email: **aharris@mbnep.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Chorro Creek Floodplain Restoration Project will re-establish Chorro Creek's historic floodplains and restore riparian vegetation to: (1) capture sediment to prevent rapid filling of the Morro Bay Estuary downstream and (2) create valuable habitat for state and federally listed species, specifically threatened Steelhead Trout and (3) help protect water quality.

Describe Need for Project/Program (1 to 2 sentences):

The Morro Bay estuary, one of the most ecologically significant wetlands on the Central Coast of California, is filling with sediment at an alarming and unnatural rate. The Chorro Creek Ecological Reserve Floodplain Restoration Project will restore Chorro Creeks historic floodplains which once captured sediment that is now filling the estuary. Restoring floodplains on the reserve will aid in groundwater recharge.

Project Website (if any):

n_a

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **HWY 1 x Tomasini Rd.**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **agriculture_protected area**

Watershed (if known) See Map: **Morro Bay**

Project Cost Range: **>$5M**

Project Cost (if known): **$5,465,525**

Source of Cost Estimate: **Engineer**

Project Status: **Ready for Implementation**

Describe status of permitting: **unsecured**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA Mitigated Neg Dec (expired)

Estimated ProjectStart Date: **1/1/2015**

Estimated ProjectEnd Date: **1/1/2018**

Identify proposed funding sources: **Wildlife Conservation Board, CA Department of Fish & Wildlife, CA Coastal Conservancy, Morro Bay National Estuary Program, NOAA Restoration Center**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The Chorro Creek Ecological Reserve Floodplain Restoration Project will restore historic floodplains on Chorro Creek. This will provide numerous benefits including: reduced stormwater as excess creek flows will spread out over floodplains_ reduced velocity over floodplains will allow sediment to settle out improving water quality_ as water spreads out and slows down water infiltration will increase, recharging groundwater_ restored floodplains will provide valuable habitat for fish and wildlife including ones that are rare and endangered_ the economically and ecologically significant Morro Bay estuary downstream will benefit from reduced sediment which is currently filling in the bay.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Groundwater recharge provided by restored floodplains will benefit both agriculture and City municipalities who rely on wells directly downstream.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Water withdrawals by the City of Morro Bay are contingent on mainting minimum surface flows in Chorro Creek. They are not allowed to pump when surface flows are below 1.4 cfs. Restoring floodplains will increase water infiltration to help recharge groundwater tables and incresae water avaiable as surface flow. Part of this project that has already been implemented was the fee title acquisition of this 560 acre property eliminting it's historic use as irrigated agriculture allowing more water to be avaiable for the creek and downstream users.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Currently the Morro Bay watershed is a 303d listed watershed impaired by sediment. Restoring floodplains in Chorro Creek is called out as a specific action in the Morro Bay TMDL (Total Maximum Daily

Load) Report for Sediment.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Two federal and state listed species are known to occur on the Chorro Creek Ecological Reserve and are benefited by this project: Federal Southern steelhead (Oncorhynchus mykiss irideus) and California red-legged frog (Rana aurora draytonii).

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Restoring floodplains improves groundwater recharge.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

This stream_floodplain restoration project will provide a buffer against stormwater flows for residents and ecosystems downstream.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

N_A

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Morro Bay is not listed as a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Restoring floodplains is considered a priority action to help Morro Bay build resilience for predicted increased stormflows. This is specifically identified under Strategy 5: Enhance and Sustain Ecosystems, in 'Managing an Uncertain Future_ Climate Change Adaptation Strategies for California's Water', prepared by the State of California Department of Water Resources in October 2008.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Numerous agencies and organization committed significant resources to help purchase this property with the specific intent to do a large scale floodplain restoration on the property. These partners include: Trust for Public Land, Wildlife Conservation Board, US Fish and WIldlife Service, California Department of Transportation, California State Coastal Conservancy, California Department of Fish and Wildlife and the

Sierra Club - Santa Lucia Chapter. All of these partners are committed to seeing this project implemented.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

There is an immediate need to implement this project to address an avulsion channel that is forming on the site. This avulsion channel is a secondary channel to the creek mainstem that has the potential to become a significant erosion source if Chorro Creek 'adopts' this as the main channel during the next large storm events. In addition, accelerated erosion in the watershed is causing the Morro Bay estuary to fill in much more rapidly than should naturally occur. If current sediment rates continue, it has been projected that Morro Bay will lose all open water to filling within 400 yrs.

Other Comments:

N_A

Conservation Planning for Coastal Watersheds

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **Nicole Smith**

Affiliation: **Conservation Programs Manager**

Address: **645 Main St., Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **nsmith@coastalrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Conservation Plan will identify and prioritize planning and implementation projects on agricultural and rural lands that address non point source pollutants and the loss of riparian corridors. Proposed plans will integrate one or more agricultural best management practices such as irrigation efficiency, nutrient and pest management, salt management, storm water and tail water management, floodplain sediment capture, riparian corridor and wildlife habitat enhancement, and water supply development. The separately proposed Ag Water Management Project could be a component of this project or a stand alone project.

Describe Need for Project/Program (1 to 2 sentences):

Over half of the County's watersheds are dominated by agricultural and rural residential land uses. Agricultural lands are identified as one source of non point source pollutants negatively affecting localcreeks by the RWQCB and their list of 303(d) impaired water bodies.

Project Website (if any):

nsmith@coastalrcd.org

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **North Coast, South County**

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agricultural properties in coastal San Luis Obispo County**

Watershed (if known) See Map: **Morro Creek, Morro Bay, San Luis Obispo Creek, Pismo Creek, Arroyo Grande Creek, Nipomo Creek, Oso Flaco Creek**

Project Cost Range: **$250K-$500K**

Project Cost (if **$500,000**

known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **N_A**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

N_A

Estimated ProjectStart Date: **7/6/1905**

Estimated ProjectEnd Date: **7/9/1905**

Identify proposed funding sources: **IRWM, in-kind contributions and potential grant funding. If the project is accepted into the regional grant additional work can be completed to produce a line item budget and estimate contributions. The Plan looks at 7 different watersheds. The District is willing to look at these watersheds individually for a lower cost, if the full project is not competitive.**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Maximize water conservation for rural and agricultural uses_

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

BMPs will efficiently use and reuse water supplies through irrigation efficiency, water supply development, nutrient and pest management, salt management, and tail water management.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

It will plan for water system improvements.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Protect and improve source water quality_ support the development and implementation of TMDLs_ implement the California NPS Plan and the RWQCB Conditional Agricultural Waiver Program for irrigated agriculture.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species

restoration, invasive species reductio

Identify best management practices that will be cost effective to address the waterquality and habitat challenges specific to each coastal watershed._ purchase, preserve, enhance, and restore land in ecologically sensitive ecosystems_ conserve natural resources

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Protect and improve groundwater quality from point and non-point source pollution, including nitrate contamination_ MTBE and other industrial, agricultural, and commercial sources of contamination_ naturally occurring mineralization, boron, radionuclide, geothermal contamination_ and seawater intrusion and salts.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Distinguish the root cause of flooding problems stemming from new development, existing development, and mandatory regulation_ integrate ecosystem enhancement, drainage control, and natural recharge into development projects.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Conduct a multi-media survey to determine agricultural landowner interest in conservation planning and their needs in terms of training and resources to meet regulatory mandates like the proposed Agricultural Order_ conduct at least two (2) water quality short courses with support from NRCS_ one focused on irrigated agriculture and one on rangeland. Workshops will aid in identifying landowners willingto implement BMPs

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

We will work with the Natural Resource Conservation Service (NRCS)

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Erosion, inefficient water use, pollution and other conservation issues will continue with varying levels of attention and funding to support best management practices.

Other Comments:

S&T Mutual Water Co_Golden State Water Co Intertie

North Coast

Sponsoring Agency/Organization: **S&T Mutual Water Company**

Contact Name: **William Garfinkel**

Affiliation: **S&T Mutual Water Co**

Address: **P. O. Box 6391, Los Osos CA 93412** Phone Number: **(805)801-3138**

Email: **morrobill@gmail.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Build a potable water intertie between S&T Mutual Water Co. and Golden State for emergency water if a problem occurs on S&T Mutual well #5 or if the well needs to shut down

Describe Need for Project/Program (1 to 2 sentences):

S&T Mutual has no other source of potable water other than what it pumps from #5 well

Project Website (if any):

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **Los Osos WPA5**

Nearest Cross Street or Street Address: **Pecho Valley Road**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **Los Osos groundwater basin**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **Noy yet applied for**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **7/7/1905**

Estimated ProjectEnd Date: **7/7/1905**

Identify proposed funding sources: **User rates and grants**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes - New water supplies

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes - Sustainability of water supplysupply

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes - Reliability of water transfer

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes - Possably to shift pumping in the aquifer to the east

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater

treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Require cooperation with Golden State Water Co

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If for any reason S&T Mutual cannot pump water from well #5 then the Sunset Terrace neighborhood in Los Osos will be without water

Other Comments:

SLO County Drought Protection & Climate Change Preparedness Pilot Project

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **GREENSPACE - The Cambria Land Trust**

Contact Name: **Rick Hawley**

Affiliation: **Executive Director**

Address: **POB 1505 Cambria, CA 93428-1505** Phone Number: **805-927-2866**

Email: **rick@greenspacecambria.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Develop, establish, and implement a set of hierarchical protocols and standards that will be followed by water users_purveyors during drought situations caused by climate change events and_or other natural or man-made conditions. The primary objective of the project is to protect and provide beneficial uses to humans and aquatic organisms, during drought situations, prior to allocating water for other beneficial uses. The project will initially start with the pilot project watershed of Santa Rosa Creek along the North Coast of SLO County. This watershed will provide a good opportunity to develop and test these drought protection criteria, which can then be scaled up to other watersheds, and eventually the entire County.

Describe Need for Project/Program (1 to 2 sentences):

Most of SLO County, including individual watersheds, are very dependent upon GW for their water supply for domestic potable water, agriculture, industrial, etc. uses. This has put GW elevations, domestic supplies, individual well owners, base flow conditions in streams, and aquatic species at risk and in need of protection. A good example of this issue is the severe problem with the existing Paso Robles GW basin. There is a serious need for resources and funding to implement alternative approaches to groundwater recharge, reuse, and management.

Project Website (if any):

Subregion (See Map) **Regional** **(2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **The pilot project will start in the N. Coast subregion, but will eventually be scaled up to include the entire SLO County region.**

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture, Rural, Urban**

Watershed (if known) See Map: **North Coast**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **no permits are currently envisioned however, as the project design process is completed permits, if any, will be identified at that time**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA NOE

Estimated ProjectStart Date: **6/1/2014**

Estimated ProjectEnd Date: **12/31/2017**

Identify proposed funding sources: **Greenspace & other partners**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Simeon**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project will increase water conservation by developing and implementing protocols and standards for water users_purveyors during drought conditions. This will improve groundwater storage, create opportunities for water recycling, and promote better practices in stormwater management with low impact development. Water use efficiency will also be enhanced by prioritizing use and consumption.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project will benefit the North Coast water supply and quality with better management, focusing on severe drought conditions induced by climate change. It willl build support for future recycled_greywater systems and rainwater reuse, especially in areas where GW supply is limited and these 'other' water supplies are not currently being used. The project will also establish a model for other watersheds to follow or adapt to in order to create a sustinable supply for ag, rural, and urban use.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Benefits of the project include water supply efficiency by developing drought preparedness for climate change and_or other natural or man-made conditions.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The project improves water quality by managing water use and consumption for all users, including

reducing and preventing point or non-point source contaminants to surface and groundwater.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

This project will expand environmental and resource stewardship by priortizing water resources (during drought conditions) for aquatic organisms and human consumption. The project will increase public environmental education on the importance of water resource management issues and proper stewardship of groundwater resources.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will help support local management of GW resources and protect against overdraft of GW basins. It will also identify, encourage, and protect GW recharge areas and protect base flow conditions for streams and aquatic resources.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes, over time the project will help support the importance and protection of GW recharge areas and the important role LID methods help to increase GW recharge. These improvements will also reduce flooding threats and restore floodplain habitats.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, it will create public outreach and participation by collaborating urban, ag, rural, and environmental interests with local resource management and communication.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes, the North Coast area includes San Simeon, a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

The primary focus of this project is to establish standards and protocols for managing and protecting water resources during drought conditions caused by climate change, or other man-made impacts.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Other partners involved in the project include Central Coast Salmon Enhancement, Cambria Community

Services District, SLO County, San Luis Coastal RCD, and private landowners.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Impacts include overdrafting of GW basins in Santa Rosa Creek and throughout SLO County that threaten domestic and private well water supplies, as well as, base flow in streams for aquatic organisms. These impacts are of greater concern in drought conditions with climate change or other man-made induced conditions.

Other Comments:

Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin

North County

Sponsoring Agency/Organization: **Vineyard Team**

Contact Name: **Kris Beal, M.S.**

Affiliation: **Vineyard Team, Executive Director**

Address: **5915 El Camino Real, Atascadero, CA 93422** Phone Number: **805-466-2288**

Email: **kris@vineyardteam.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project will create weather based irrigation targets for the vineyard industry, in addition to providing technical assistance to individual growers to help them maximize their irrigation efficiencies. Vineyard Team staff (viticulturist and irrigation specialist) will work with the Irrigation Training and Research Center to develop the targets (refined for subareas of the basin), collect applied water use for individual growers, report the data in aggregate, and feedback to individual growers as a basis for technical assistance.

Describe Need for Project/Program (1 to 2 sentences):

Vineyards currently represent over 50% of the basin pumping demand and must play an important role in protecting the sustainability of the basin. Even small improvements in irrigation efficiencies and decreases in applied water use can produce a meaningful and significant reducation in pumping in the basin.

Project Website (if any):

www.vineyardteam.org

Subregion (See Map) **North County**

If Regional, please indicate which Subregions: **North County**

Nearest Cross Street or Street Address: **n_a**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture**

Watershed (if known) See Map: **Estrella, Atascadero, Shandon, Creston**

Project Cost Range: **$250K-$500K**

Project Cost (if known): **$350,000**

Source of Cost Estimate: **Other**

Project Status: **Ready for Implementation**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/2/1900**

Identify proposed funding sources: **IWRM & other grant sources, matching funds provided by private industry from membership dollars**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, this project will increase water conservation among vineyards, the largest pumper in the Paso Robles Groundwater Basin

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, this project will affect the sustainability of groundwater supplies in the Paso Robles Groundwater Basino

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, reducing groundwater pumping addresses drought preparedness.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, groundwater conservation affects water quality by reducing concentration of salts within the basin.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes, conservation of groundwater pumping provides an environmental benefit through stewardship and stabilizing groundwater levels.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, reducing groundwater pumping from ag users is a significant groundwater management objective and

consistent with basin objectives.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, this project includes an agricultural outreach component - the Vineyard Team's current outreach structure currently reaches over 2,500 growers each year through print and digital materials, field days, and conferences.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes, reducing applied irrigation water from pumping directly reduces energy demands.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

We anticipate working with the Upper Salinas Las Tablas RCD to develop outreach activies and materials, in addition to providing irrigation system evaluations for individual growers.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The Vineyard Team is a small, grass roots grower group with technical capacity and outreach infrastructure to conduct meaningful programs that affect grower behavior. Nevertheless, the group's capacity is limited and requires financial support to implement a robust water conservation program that involves industry wide data collection and grower specific technical assistance. Without financial support, the group is limited in being able to provide targeted programs and many growers will not be assisted in improving their irrigation efficiencies. Not implementing a rigorous program to address vineyard pumping in the Paso Robles Groundwater Basin will have significant negative effects on the basin.

Other Comments:

The Vineyard Team is the best organization to implement a demand management program with vineyard irrigators in the basin. The group has a 15 year track record working with growers and has the respect and credibility in the community. The Vineyard Team has a proven track record for influencing behavioral change on a variety of farming issues and will be successful in the area of water conservation.

21st Street Reservoir Reconstruction

North County

Sponsoring Agency/Organization: **City of Paso Robles**

Contact Name: **Christopher Alakel**

Affiliation: **City of Paso Robles**

Address: **1000 Spring St., Paso Robles, California 93446** Phone Number: **805-237-3861**

Email: **calakel@prcity.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project involves the reconstruction of an antiquated 4 million gallon capacity in-ground potable water reservoir located on the City's west side.

Describe Need for Project/Program (1 to 2 sentences):

The existing reservoir, constructed in the 1930s and 1950s is not built to modern engineering and seismic standards for water system reservoirs. The reservoir roof is constructed of wood framing and plywood and is in danger of collapse. The roof sustained significant damage during the San Simeon quake of 2003. The structure has been repaired many times in the past but it is in need of replacement. In the event of a tank failure, water supply and emergency water supply for City's west side would be severely compromised.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **21st Street and Olive St. , Paso Robles, California**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **Salinas**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Design Phase**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Pending

Estimated ProjectStart Date: **1/1/2017**

Estimated ProjectEnd Date: **1/1/2018**

Identify proposed funding sources: **Water Rate Revenues**

What is the Percent Range of Matching Funds? **>51%**

Does Project Serve a Disadvantaged Community (DAC)? **Paso Robles**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project will provide improvements to existing water supplies, increasing potable water system reliability for the 10,600 + water customers of the City of Paso Robles

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project will improve water supply reliability within the City of Paso Robles, particularly the low-income west side of the City.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The new reservoir will provide a modern tank design with improved water mixing. This will improve improve the quality of water delivered to City water customers. The existing antiquated reservoir has limited mixing capability to aid in maintaining chlorine residual and controlling the formation of Trihalomethanes (THM).

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The project will result in improved quality of wastewater discharged to the Salinas River.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Paso Robles has been designated as a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the City's west side will continue to be served with a storage reservoir that is at high risk of failure, especially during a seismic event, with the potential for flooding damage, and leaving a large portion of the City with inadequate emergency water storage.

Other Comments:

Several desgin alternatives have been taken to various levels of completion. Final design of a single 4 MG replacement reservoir will be needed.

8th Street Upper Aquifer Well and Nitrate Removal Facility

North Coast

Sponsoring Agency/Organization: **Los Osos Community Services District**

Contact Name: **Margaret Falkner**

Affiliation: **Interim General Manager**

Address: **2122 9th Street, Suite 102, Los Osos, CA 93402** Phone Number: **805-528-9376**

Email: **mfalkner@losososcsd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project consists of the construction of a new well into the Los Osos Groundwater Basin Upper Aquifer and will include construction of a nitrate removal facility at the Los Osos Community Service District's 8th Street and El Moro water yard site. The new Upper Aquifer well will help reduce stress on the Lower Aquifer, thus reducing the potential for seawater intrusion in the Lower Aquifer, which is the community's primary drinking water supply.

Describe Need for Project/Program (1 to 2 sentences):

The Los Osos Groundwater Basin is in a Level Severity III, and is experiencing seawater intrusion in the community's primary drinking water supply. Without the completion of this project, the Basin safe yield will continue to be in overdraft and the seawater intrusion front will continue to move eastward impacting more of the community's potable water supply wells, resulting in the loss of potable wells, the community's only drinking water supply. The proposed project will increase production of the Upper Aquifer, supplement production in the Lower Aquifer to make up production lost from the District's main water supply, and shift production from the west to the east of the District alleviating seawater intrusion.

Project Website (if any):

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **8th Street and El Moro Avenue, Los Osos, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Residential**

Watershed (if known) See Map: **Los Osos_Morro Bay**

Project Cost Range: **$500K-$1M**

Project Cost (if known): **$935,000**

Source of Cost Estimate: **Engineer**

Project Status: **Design Phase**

Describe status of permitting: **Currently permitting has not been initiated for construction of the well and treatment equipment installation. Once design is completed, we will apply for the appropriate permits.**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

This project will require an update to the previous CEQA determination done for the Los Osos Water Master Plan in 2005. It is expected that the project will include a mitigated Negative Declaration from San Luis Obispo County.

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **LOCSD Water Fund, Grant Funding**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project will provide a new water source that will improve reliability of the District's domestic water supply.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project will help improve existing water quality by reducing the demand on the Lower Aquifer, thereby reducing the rate of seawater intrusion into the Lower Aquifer of the Los Osos Groundwater Basin. In addition, the new well will include a nitrate removal facility, improving the water quality coming from the groundwater, which will then be blended with the existing water, improving overall water quality in the system.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

This project directly improves water supply reliability by providing an additional water supply source from the Upper Aquifer, thereby reducing the demand on the Lower Aquifer.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

This project will help reduce the rate of seawater intrusion on the Lower Los Osos Groundwater Basin Aquifer, thereby helping improve overall groundwater quality in that Aquifer.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

This project will provide environmental benefits by improving recharge protection of the already-overdraft

Lower Aquifer of the Los Osos Groundwater Basin. Pumping from the Upper Aquifer will provide relief from the Lower Aquifer, slowing seawater intrusion and helping to protect the Lower Aquifer safe yield. In addition, treating the high nitrates from the Upper Aquifer will improve domestic water quality. This project provides an excellent opportunity for public education on the overall resource stweardship of how potable water supply has a direct relationship with environmental aspecs such as seawater intrusion and a limited groundwater source.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The ISJ Working Group, a court mandated entity, comprised of representatives from LOCSD, SLO County, Golden State Water Company, and S&T Mututal Water Company, are currently preparing a Los Osos Groundwater Basin Management Plan (Basin Plan). Some of the objectives of the Basin Plan are to bring the basin into a safe yield for existing customers. Based on hydogeological studies, this objective can be accomplished by reducing pumping of the lower aquifer, shift production to the Upper Aquifer, and shift major pumping from the west to the east side of the groundwater basin, further away from the source of seawater intrusion. This project meest these objectives and improves overall groundwater management.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

N_A

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

This project meets several water resource management goals, and affects several agencies. The nitrate contamination of the Upper Aquifer has been a well documented issue in the Los Osos Groundwater Basin and, the objectives of this project, including improving water quality by nitrate removal, and pumping from the Upper Aquifer to alleviate seawater intrusion from the Lower Aquifer, will directly and indirectly affect agricultural, urban, rural, and environmental interests, as well as the public.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

N_A

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Seawater intrusion, a potential result of climate change, could severely impact the primary drinking water supply for the District. Implementing this project, thereby reducing the rate at which seawater intrusion impeeds the quality and quantity of the domestic water supply for the District, would help mitigate seawater intrusion associated with climate change.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The ISJ Working Group, a court mandated entity, comprised of representatives from LOCSD, SLO County, Golden State Water Company, and S&T Mutual Water Company, are in the process of preparing a Groundwater Basin Management Plan (Basin Plan). One of the objectives outlined in the Basin Plan is to bring the Los Osos Basin into a safe yield for existing customers. While the project would be implemented and owned soley by the Los Osos Community Services District, the impacts of the project help meet the objective of the Basin Plan, thereby improving the overall drinking water reliability for the water purveyors relying on groundwater from the Los Osos Basin.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The District receives its entire water supply from the Los Osos Groundwater Basin (Basin). The Basin has two distinct zones: Upper Aquifer and the Lower Aquifer. There are currently two separate, but highly intertwined problems with the Basin. The first issue is that the Lower Aquifer is experiencing increasing levels of seawater intrusion due to overdrafting of the Lower Aquifer. The second issue is that the Upper Aquifer is contaminated with nitrates above the drinking water standard. The Lower Aquifer has been the District's, as well as the other two water purveyors', primary water supply source as the Upper Aquifer has been contaminated by nitrates. The Lower Aquifer is currently in overdraft and is experiencing seawater intrusion in the District's and other water purveyors' westernmost wells. Production from the District's largest and primary water supply, the Palisades Well, has been required to be reduced to minimize the impacts of seawater intrusion. Other wells within the District are being utilized instead of the Palisades Well, all of which have lower production rates, and subsequently the District is barely keeping up with current water demands. Due to the high density of septic systems in the Los Osos Community, the Upper Aquifer is contaminated with nitrates above the drinking water standards. The community has been subject to a building moratorium from the Regional Water Quality Control Board, Resolution 83-13 for the past 28 years. This order requires the community to develop a community wide centralized wastewater collection system and treatment plant, which is currently underway by the County of San Luis Obispo and is anticipated to break ground in 2012. The District, as well as the other two water purveyors within the community have under-utilized the Upper Aquifer because the water quality for nitrates does not meet current CDPH drinking water quality standards. Limited blending to reduce nitrate levels below drinking water standards has occurred in years past, but not to the degree that such blending can augment existing water supply sufficiently. The County of San Luis Obispo, due to the two distinct water quality issues and the overdraft of the Lower Aquifer, has placed the Los Osos Groundwater Basin in a Level Severity III Drought condition. In order for the Los Osos Groundwater Basin to be sustainable, the District must reduce its pumping from the Lower Aquifer and increase its pumping from the Upper Aquifer to meet existing demands. In order to increase production from the Upper Aquifer, the water is required to be treated to remove nitrates to the degree that the water supply meets drinking water standards. The Los Osos Groundwater Basin is in a Level Severity III, as defined by the County of San Luis Obispo. Without the completion of this project and additional projects defined by the ISJ Working Group, the Basin safe yield will continue to be in overdraft and the seawater intrusion front will continue to move easteward impacting more of the community's potable water supply wells, which would result in the loss of potable water wells, the community's only drinking water supply.

Other Comments:

See attached Exhibit 1 for the proposed site plan for the new well and nitrate removal treatment skid. The Project Cost Estimate provided was conservative. The project cost will range from $840,000 - $935,000

Agricultural Water Management and Conservation Program

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **G.W. Bates**

Affiliation: **Coastal San Luis Resource Conservation District**

Address: **645 Main Street, Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **gbates@coastalRCD.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project is designed to provide education, training, technical support, and capital funding to improve irrigation water management in the County. Funds will be used to teach farmers how to manage water usage and provide the modern tools required to do so. The project will include the following components:

1. **Funding assistance for agricultural water meters and other irrigation system improvements aimed at water use efficiency.**
2. **Coordinate installation of additional CIMIS Stations for improved weather-based irrigation scheduling.**
3. **Development of mobile applications for weather based irrigation scheduling. This would include implementing the CropManage program developed by the UC Cooperative Extension**
4. **Education, outreach and training for farmers on irrigation water management.**
5. **Conducting Irrigation System Evaluations.**

Describe Need for Project/Program (1 to 2 sentences):

Agricultural water use accounts for a large portion of all the water used in the County. Poor agricultural water management impacts groundwater and surface water quantity and quality. Through proper management and use of appropriate technologies farmers can conserve water and make the most of the available supply. In order to achieve this farmers need access to flow meters and weather based irrigation scheduling information as well as training on how to achieve water conservation through irrigation water management. The proposed project can provide all of these to farmers throughout the County.

Project Website (if any):

Subregion (See Map) **Regional** **(2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agricultural**

Watershed (if known) See Map: **County Wide**

Project Cost Range: **$250K-$500K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA_NEPA has not begun. The majority of this project would be exempt form CEQA_NEPA with the possible exception of the construction of new CIMIS stations.

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **USDA_NRCS, Possible Landowner Match**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. The proposed project will improve agricultural water use efficiency by helping to provide modern tools and methods for irrigation water management.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. The proposed project will help the county manage groundwater supply and move towards sustainability. Water quality will also benefit.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. This project will improve operational efficiencies for on farm irrigation systems by helping to provide structural improvements to existing systems. By increasing irrigation water use efficiency the project will also improve drought preparedness for farmers.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. This project will reduce non-point source contaminants to surface and ground water by reducing excess leaching and runoff from irrigated ag lands.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The goal of this project is to improve water use efficiencies by increasing the percentage of applied irrigation water that contributes to beneficial use. This will reduce the amount of 'excess' or 'non-beneficial' irrigation water pumped which will reduce the opportunity for pollution, and reduce the amount of polluted runoff entering local ecosystems.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. One of the major difficulties with groundwater management is the lack of metering on irrigated ag land. If groundwater is not accurately measured, then it cannot be adequately managed. This is true on a the basin scale as well as the farm scale. Without proper metering, neither farmers nor monitoring agencies can accurately measure water use. Providing flow meters can improve groundwater management by improving measurement. On-farm flow measurement is also required for proper irrigation water management.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. A major component of this project is education, outreach and training for agricultural water resources management.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. This project will improve irrigation water management throughout the County. This includes any disadvantaged communities were irrigated agriculture is present. This program will address areas such as the Paso Robles Groundwater Basin with critical quantity issues, and help prevent other basins from reaching critical levels.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Improved irrigation efficiencies will reduce energy used for pumping. This in turn will reduce greenhouse gase emissions.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

This project will involve partnerships throughout the County. The Coastal San Luis Resource Conservation district will partner with agencies like the National Resource Conservation Service (NRCS), Upper Salinas - Las Tablas Resource Conservation District and any water districts that supply irrigation water. The UC Cooperative Extension could be another partner.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Failure to implement irrigation water management and conservation efforts will exacerbate county water quality and quantity issues. These issues have reached critical levels in many areas in the County and will continue to grow if unchecked.

Other Comments:

Measurement tools are required to implement irrigation water management. This project can help implement these tools throughout the County and train farmers on their use.

Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed

South County

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **Nicole Smith**

Affiliation: **Conservation Programs Manager**

Address: **645 Main St., Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **nsmith@coastalrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed is a planning, monitoring and outreach project to develop an alternatives analysis and implementation plan to address groundwater and surface water pollution, agricultural and storm water runoff and conveyance issues for the Oso Flaco watershed.

Describe Need for Project/Program (1 to 2 sentences):

Oso Flaco Lake has one of the highest DDT concentrations in the nation. The lake and creek are also listed as impaired water bodies for ammonia, boron, chloride, chlorophyll-a, chlorpyrifos, diazinon, electrical conductivity, fecal coliform, low dissolved oxygen, nitrate, nitrogen, pH, sediment toxicity, sodium, and turbidity with TMDLs under development. Focusing on individual components of the problem has been unsuccessful in part because of the need for a significant outlay of resource and in part because of landowners distrust of regulatory involvement.

Project Website (if any):

http:__www.coastalrcd.org_

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Osos Flaco Watershed, Osos Flaco Creek and Oso Flaco Lake**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture**

Watershed (if known) See Map: **Osos Flaco Watershed**

Project Cost Range: **<$250K**

Project Cost (if known): **$150,000**

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of **No permitting completed to date.**

permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

TBD.

Estimated ProjectStart Date: **7/6/1905**

Estimated ProjectEnd Date: **7/9/1905**

Identify proposed funding sources: **IRWM and potential contributions from CCRWQCB and others**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

N_A

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

N_A

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

N_A

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Protect and improve source water quality_ support the development and implementation of TMDLs_ implement the California NPS Plan and the RWQCB Conditional Agricultural Waiver Program for irrigated agriculture.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Purchase, preserve, enhance, and restore land in ecologically sensitive ecosystems_ conserve natural resources

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Develop monitoring and reporting programs for groundwater basins in the region_ protect and improve groundwater quality from point and non-point source pollution, including nitrate contamination_ MTBE and other industrial, agricultural, and commercial sources of contamination_ naturally occurring

mineralization, boron, radionuclide, geothermal contamination_ and seawater intrusion and salts_ conduct public education and outreach about ground water protection_ identify areas of known or expected conflicts and target stakeholders on specific actions that they should take to help protect groundwater basin quality and supply_ recharge ground water with high quality water. This monitoring will help fill data gaps identified in the TMDL documents.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Integrate ecosystem enhancement, drainage control, and natural recharge into developmentprojects_ develop and implement public education, outreach, and advocacy

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

This project proposes to build off existing plans and studies to develop an integrated plan with three main focus areas: Planning, Monitoring, and Outreach. The plan will focus on integrated solutions, regulatory constraints, cost estimates and potential funding sources. Planning efforts will inform future TMDL implementation plans and result in solutions accepted by watershed stakeholders.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Much of Oso Flaco Watershed is within the Cachuma Resource Conservation District (Santa Barbara County), with Oso Flaco Lake and portions of the lower Creek in the Coastal San Luis Resource Conservation District. The Cachuma RCD has expended considerable effort on landowner outreach and agricultural solutions. Studies prepared by the Central Coast Regional Water Quality Control Board, California State Parks and Recreation and the Coastal San Luis Resource Conservation district (CSLRCD) have identified many concerns and potential solutions. However, solutions to many of these problems extend beyond the reach of agricultural BMPs. The relationship between regulators, public agencies and landowners in this watershed is contentious.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Arroyo Grande Creek Channel Waterway Management Program

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control and Water Conservation District, Zone 1_1A**

Contact Name: **Jill Ogren, PE**

Affiliation: **San Luis Obispo County Public Works**

Address: **County Government Center, Room 206, San Luis Obispo, CA 93408**

Phone Number: **805.781.5263**

Email: **jogren@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Provide a Brief Project/Program Description (1 to 2 sentences):

Construction and implementation of the Arroyo Grande Creek Waterway Management Program is intended to restore the capacity of the leveed lower three miles of the Arroyo Grande Creek channel and the Los Berros Diversion channel. Full implementation will provide 20-year flood protection while simultaneously enhancing a) water quality and b) sensitive species habitat within the managed channel.

Describe Need for Project/Program (1 to 2 sentences):

Current calculations suggest that the channel system has a discharge capacity of 1,700 cfs. This capacity equates to a storm event recurrence interval of approximately 2.8 years which places the surrounding areas in significant danger of recurring flood conditions.

Project Website (if any):

Subregion (See Map)

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Oceano and Arroyo Grande**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **agriculture, industrial, residential**

Watershed (if known) See Map: **Arroyo Grande Creek Watershed**

Project Cost Range: **>$5M**

Project Cost (if known): **$7,342,000**

Source of Cost Estimate: **Agency**

Project Status: **Design Phase**

Describe status of

permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Ecosystem restoration. Project provides riparian vegetation, bank stabilization, and stream shading benefiting ecosystem restoration, water quality, flood protection and aesthetics.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The Arroyo Grande Creek Channel WMP is a comprehensive set of actions to increase the capacity of the leveed lower three miles of Arroyo Grande Creek and Los Berros Diversion Channels, while also enhancing water quality and sensitive species habitat within the managed channel. Actions include raising the height of the existing levees, managing in-channel vegetation to enhance habitat and reduce flow restrictions, reducing sediment deposition within the channel, implementing specific sediment removal projects, and raising the Union Pacific Railroad Bridge to accomodate higher water levels. Full implementation of the WMP elements will provide 20 year flood protection for the surrounding community.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

In 2006, the Zone 1_1A property owners voted to increase local assessments for channel maintenance, passing with 89% of votes cast. By increasing local revenues for channel maintenance management of the channel was able to remain in local hands. It should also be noted that the WMP was developed from an extensive alternatives analysis and in response to suggestions and with guidance from several State and Federal resource agencies that recognized the importance of approaching AG Creek channel maintenance from a comprehensive perspective. The WMP is the result of nearly a decade of planning, studies, alternatives development and analysis in order to ensure that future efforts fully capitalize on recent improvements in habitat while incorporating new approaches to flood management.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Implementation of the program will provide ugently needed flood protection for the disadvantaged community of Oceano and the highly productive agricultural areas of the Cienega Valley.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The Arroyo Grande Creek Watershed Memorandum of Understanding is in place and was deisigned to improve watershed conditions and limit sediment delivery from upslope areas to impacted reaches of Arroyo Grande Creek. The purpose of the MOU is to enhance an overall understanding of watershed issues and promote consensus between the parties in order to better protect, manage and enhance the Arroyo Grande Creek Channel.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

On March 5, 2001, the south levee breached during heavy rainfall and the most extensive flood damage occurred since the channel was constructed in 1961. The high flood risk of the current condition and the previous event highlights the need to take immediate action on specific elements of the overall WMP to begin increasing the capacity of the channel. Full implementation of the program elements would restore the channel capacity and provide 20-year flood protection to the surrounding area.

Other Comments:

Arroyo Grande Creek Watershed Program

South County

Sponsoring Agency/Organization: **Central Coast Salmon Enhancement**

Contact Name: **Steph Wald**

Affiliation:

Address: **229 Stanley Ave., Arroyo Grande, CA 93420** Phone Number: **805-471-3789**

Email: **steph@centralcoastsalmon.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Arroyo Grande Creek Watershed Program Includes several projects arising from planning efforts that have occurred to address flood protection, habitat enhancement and water quality issues including the following: the Arroyo Grande Creek Watershed Management Plan (CCSE, 2009 Update), the Arroyo Grande Creek Erosion, Sedimentation and Flooding Alternatives Study (Swanson Hydrology and Geomorphology, 2005), Tally Ho Creek Planning Project (Waterways Consulting, 2010), Los Berros Nitrate TMDL Project Report (RWQCB, 2012) and the Arroyo Grande Creek Waterways Management Plan (Waterways Consulting, 2010). The project slate includes: modification of the Arroyo Grande Stream Gage (design 100% complete), replacement of Cecchetti Road Culvert (design 30% complete), implementation of the Tally Ho head-cut repair and sediment removal (design 50% complete), Tally Ho Low-flow channel option and Tally Ho Levee Enhancement, initiate nitrate reduction program for Los Berros Creek and invasive plant removal watershed-wide.

Describe Need for Project/Program (1 to 2 sentences):

The proposed projects will serve to reduce flood risk and sediment delivery to the main stem, improve wildlife habitat for rare and threatened species including steelhead and red-legged frogs, and address water quality issues.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **urban, ag, and rural residential**

Watershed (if known) See Map: **Arroyo Grande Creek**

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **program elements are at different stages of planning and permitting**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Urban Streams Restoration Program (for Tally Ho projects), CDFW Fisheries Restoration Grant Program (for fish passage projects), DWR and SWRQB (for TMDL projects)**

What is the Percent Range of Matching Funds? **>51%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The Tally Ho projects will improve stormwater management within the City of Arroyo Grande,

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Los Berros nitrate reduction projects will improve water quality for the Los Berros subwatershed.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Los Berros nitrate reduction projects will improve ground water quality for ag water supplies in the Los Berros subwatershed. The Tally Ho projects will reduce sediment sources to main stem surface water.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The fish barrier modification projects serve to improve passage for steelhead and endangered species protection, the Tally Ho projects serve to enhance the riparian corridor and working with landowners to manage their creek adjoining properties for the values being restored, the nitrate reduction project will involve land use management and public education and the invasive plant removal project will provide invasive species reduction.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring,

banking/recharge, etc.)?

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The Tally Ho projects will improve flood management and floodplain restoration within the City of Arroyo Grande.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project slate as a whole involves AG Creek MOU signatories including collaboration among urban, ag, rural and environmental interests, local control, public outreach and education for the Tally Ho subwatershed, invasive control and nitrate reduction projects.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The flood protection elements address flood risk in the flood control channel including the community of Oceano and the South County Sanitation District's wastewater treatment plant.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

An outcome of the Arroyo Grande Creek Watershed Management Plan (CCSE, 2005) was the development and implementation of the Arroyo Grande Creek MOU which specifies roles and responsibilities of participating entities in the management of the watershed. Signatories include the City of Arroyo Grande, the County of San Luis Obispo, the Coastal San Luis RCD, Central Coast Salmon Enhancement, the NRCS and the South County Sanitation District. Additional cooperators which haven't become signatories but have stated willingness to participate include the US Fish and Wildlife Service, the California Department of Fish and Wildlife, State Parks and the Central Coast Regional Water Quality Control Board. The MOU group meets quarterly and has been cooperatively planning several of the proposed program elements herein.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Flood risk would continue to remain high for the flood control and Tally Ho reaches, steelhead migratory passage issues would persist and population would continue to decline, nitrate TMDL would not be addressed and presumably worsen, invasive plant species would continue to outcompete natives which leads to canopy tree decline which leads to water quality impairments.

Other Comments:

Signatories have discussed applying for funding together through IRWM opportunities and would work with

the County to refine the project slate put forth here in the next phase of project solicitation. Note that Arroyo Grande Creek Waterways Management Program projects are not yet included in the slate as CCSE is not up-to-date on time-lines and existing grant requests for those projects, and defers to the county to include those elements in the solicitation process.

Atascadero Creek Watershed Management Plan

North County

Sponsoring Agency/Organization: **City of Atascadero**

Contact Name: **David Athey**

Affiliation: **Deputy Public Works Director**

Address: **6500 Palma Avenue** Phone Number: **805-470-3424**

Email: **dathey@atascadero.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The City and Upper Salinas RCD will partner in the development of a Watershed Management Plan for the Atascadero, Graves, Paloma and Boulder Creeks including the Salinas River within the City. The plan will identify locations where Low Impact Development(LID)_hydromodification control projects can be implemented. The Plan will allow the City more options in controlling hydromodification control and managing ground and stormwater resources. In addition, the plan will identify strategies for improving watershed health and maintaining adequate flow and groundwater recharge at the headwaters of the Salinas River.

Describe Need for Project/Program (1 to 2 sentences):

The City does not currently have a Watershed Management Plan. A Watershed Management Plan will provide the City with additional options for implementing LID_Hydromodicaton control projects within the City. As these sub-watersheds are at the headwaters of the Salinas River and are know steelhead habitats, identification of holistic watershed management strategies and groundwater recharge options are key to maintaining and increasing the viability of the Atascadero sub-basin and watershed eco-system.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Project Covers the entire City of Atascadero**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban to Suburban**

Watershed (if known) See Map: **Atascadero, Graves, Paloma, Boulder**

Project Cost Range: **$250K-$500K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **None**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not yet started.

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **1/1/2016**

Identify proposed funding sources: **100% IRWM**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This project will increase groundwater recharge through the identification of projects where groundwater recharge can occur in Atascadero's watersheds. The projects will be identified within the Atascadero Sub-Basin. The projects will be used to mitigate new impervious surface that is constructed in Atascadero. Part of the analysis will include identification of key infiltration areas within the watershed to maximize groundwater recharge and support the long term stability of the basin.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

This project will improve water supply sustainability by identifying sites where groundwater recharge can occur. The project sites will mitigate the deleterious effect of impervious surfaces on groundwater recharge. This project will also aid in groundwater management and the long term sustainability of groundwater supply in the Atascadero Sub-basin.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

This project will identify project sites near the Atascadero Sub-basin that will be used to infiltrate groundwater. This will aid in drought preparedness by providing additional infiltration locations in low-rainfall years.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

This project will improve water quality through infiltration of high quality stormwater and identify strategies for lessening pollution loads throughout the watershed.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

This project will increase environmental stewardship by identifying opportunities for community wide education and collaboration with private landowners. In addition, strategies for enhancing threatened and_or key riparian species will be identified. The plan will provide targeted land-use management projects and options to ensure the future health of the watersheds and will include recommendations for stream flow management to ensure maximum stormwater catchment and infiltration in key areas of the City.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The Watershed plan will identify sites that can be used to infiltrate groundwater into the Atascadero Sub-basin. Increased infiltration will increase the amount of available groundwater in the Atascadero sub-basin.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

This project will support the City's effort to implement Low Impact Development_Hydromodifcation control by providing city-wade targeted infiltration sites and city-wide analysis and management of future impacts related to increases in impervious surfaces due to development. Increased infiltration of stormwater will reduce flooding within the City in areas known to be at rick during high rainfall years. In addition, the plan will be used to identify floodplains and restore those floodplains through the identification of potential projects. The plan will provide a basis for city-wide coordinated stormwater management rather than based on individual projects.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The Watershed plan will provide the City flexibility with LID_.Hydromodification control within the City. The plan will provide the City with additional control over stormwater solutions which will lead to better management, public understanding and acceptance. In addition, a holistic watershed management plan will include public outreach and education opportunities for the public in regards to ecosystem health, groundwater recharge and water conservation.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

The project will provide opportunities for revegetation and enhancement of watershed health which will assist in reversing climate change impacts such as temperature rises in local creeks and drought conditions and decreased in-stream flows within the Salinas River and its tributaries.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The City of Atascadero will partner with the Upper Salinas-Las Tablas RCD to develop a comprehensive watershed management plan.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

City residents, developers and the City will have less options for implementation of LID and hydromodification controls. This means that projects that could potentially benefit groundwater recharge will likely not occur, along with the associated benefits of improved groundwater management, long-term groundwater stability, stream stabilization, ecosystem health, and water quality improvement.

Other Comments:

Beach Street Alley Waterline Replacement

South County

Sponsoring Agency/Organization: **Oceano Community Services District**

Contact Name: **Doug Groshart, PE**

Affiliation: **DPSI, Inc. - District Engineer**

Address: **545 Higuera Street, San Luis Obispo, CA** Phone Number: **(805)250-2891**

Email: **dgroshart@dpsiinc.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

OCSD is seeking grant funding to assist with the replacement of an existing 4-inch diameter water line, approximately 840 feet in length. The project is located in the alley between Beach Street and Highway One, beginning at 17th Street and ending 180 feet east of 19th Street in Oceano, CA.

Describe Need for Project/Program (1 to 2 sentences):

The existing line is undersized for current and projected system demands, as well as for current fire flow needs (per the OCSD Water Master Plan). Additionally, given the line's age and thin-walled material, it is subject to frequent failures and requires regular repair.

Project Website (if any):

N_A

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **South County**

Nearest Cross Street or Street Address: **17th Street and Beach Street**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Commercial Retail**

Watershed (if known) See Map: **Five Cities**

Project Cost Range: **<$250K**

Project Cost (if known): **$225,000**

Source of Cost Estimate: **Engineer**

Project Status: **Design Phase**

Describe status of permitting: **Awaiting transfer of information from Wallace Group (previous District Engineer) with specific planning information. A preliminary analysis was performed by Wallace Group for this project. The analysis showed that**

the project was outside of the Coastal Zone.

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

While it's not certain, it is believed that CEQA_NEPA analysis has been completed (again, pending transfer of information from Wallace Group).

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Approximately $32k has been budgeted in FY 13_14 for Water System Infrastructure improvements (approximately 14% of the project's estimated cost).**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project will minimally increase water conservation by eliminating frequent (and often substantial) leaks from the existing line.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project will improve the existing water supply by increasing the existing capacity to meet user and fire flow demands. The new line will also be sized to allow for future expansion in the area to projected buildout flows (based upon District Zoning).

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project will greatly improve water system operational efficiencies and water supply reliability in the immediate area of the project. Given the frequent need for repairs and service outages during repairs on the existing line, overall system operational efficiency will be improved as well. This will allow the Operations Staff the ability to devote more time to other areas of system operations instead of regular repairs of this line.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The project will potentially reduce the possibility of contamination of the water supply in the local area of the project. In the event of a pipe rupture, the possibilities for backflow into the line (and potential contamination) increase.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project will have minimal environmental benefits other than those realized with eliminating the frequent need for repairs. Typical repairs require excavation and installation, requiring heavy equipment, which increase possible greenhouse gas emissions, noise, dust and traffic concerns.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will eliminate frequent leaks in the system which will allow for more efficient use of groundwater.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

This project will not have any impact on flood management.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

This project will provide outreach from OCSD to the Oceano Community and demonstrate that the OCSD is doing all that they can to ensure a safe, reliable water supply.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The project will address water-related needs for the disadvantaged community of Oceano by increasing supply and fire flow capacities, as well as decreasing potential for local contamination due to backflow.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

The project has minimal impact on climate change concerns. There will be a reduction of green house gas and dust issues realized by eliminating the need for frequent repairs to the line (heavy equipment, excavation, traffic issues, dust issues).

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

OCSD is open to any available grant funding for the purposes of improving the system infrastructure for the disadvantaged Oceano Community.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, most likely the line will stay in its current state (undersized, frequently in need of repairs, etc.) and fire flow capacities will not be met.

Other Comments:

The project is technically still in the design phase, but is approximately 80-90% complete. Upon receipt of funding approval, the design could be completed in very short order.

Cambria Pump Station

North Coast

Sponsoring Agency/Organization: **County of San Luis Obispo, Department of Public Works**

Contact Name: **Eric Laurie**

Affiliation: **County of San Luis Obispo, Department of Public Works**

Address: **County Government Center, Room 207, San Luis Obispo, CA 93408**

Phone Number: **805-788-2758**

Email: **elaurie@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project consists of the construction of a new storm water pump station and outlet structure pumps floodwaters from the lowest part of West Village through a 42-inch diameter discharge pipe directly into Santa Rosa Creek. The project's purpose is to significantly reduce flooding in the saump area of the West Village of Cambria.

Describe Need for Project/Program (1 to 2 sentences):

In March 1995, San Luis Obispo County experienced one of the worst flood events in its history. Cambria's West Village, one of the County's most flood-prone areas, became a lake as Main Street businesses found themselves immersed in nearly 6 feet of standing water. County Public Works Department responded to this disaster by implementing the three phase Cambria Flood Mitigation Project (Project). The Cambria Pump Station project is the final phase of the three-phase Cambria Flood Control Project, Phase I consisted of a new Santa Rosa Creek bypass structure at the Hwy 1, and Phase II constructed a pressure storm drain system to collect and convey floodwater from the surrounding hills directly into Santa Rosa Creek.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Main Street, West Village, Cambria, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map:

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$1,165,920**

Source of Cost Estimate:

Project Status:

Describe status of permitting: **In process (30%) - Estimated Completion by May 2014**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

In process (30%) - Estimated Completion by April 2014

Estimated ProjectStart Date: **7/1/2008**

Estimated ProjectEnd Date: **10/1/2014**

Identify proposed funding sources: **Funding for Capital Costs: County funds to Special Districts_ Flood Control GeneralFunding for O&M: County Operations Budget for maintenance to be completed by County forces**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)?

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

This project protects groundwater from point and non-point pollution.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The project benefits the community of Cambria by reducing or eliminating flood water in the West Village area. This project is a flood control project and, as such, does not have water quality or water supply benefits. This project merits consideration as it will alleviate the flooding risk in an area seriously flooded in 1995, which resulted in severe property damage.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The Cambria Community Services District. Also, FEMA funds provided for the completion of the first two phases of the overall Cambria Flood Control Project and completion of a a portion of the Cambria Pump Station.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Closing Priority Conservation Data Gaps

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **Nicole Smith**

Affiliation: **Conservation Programs Manager**

Address: **645 Main St., Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **nsmith@coastalrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project will address the top priority data gaps identified by the Countywide Watershed Planning Phase I. Data gaps will be identified by September 2013 with priority ones chosen soon after.

Describe Need for Project/Program (1 to 2 sentences):

To better manage and protect our natural resources we need a clear understanding of issues, dynamics and connections occuring in our watersheds. The priority data gaps were identified in order to support informed water management

Project Website (if any):

nsmith@coastalrcd.org

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **Countywide**

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **all land uses**

Watershed (if known) See Map: **all watersheds**

Project Cost Range: **$250K-$500K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **N_A**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

N_A

Estimated ProjectStart Date: **7/6/1905**

Estimated ProjectEnd Date: **7/9/1905**

Identify proposed funding sources: **IRWM, in-kind contributions and potential grant funding. If the project is accepted into the regional grant additional work can be completed to produce a line item budget and estimate contributions.**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

TBD

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

TBD

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

TBD

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

TBD

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

TBD

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

TBD

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood

control projects, system operations, stream/floodplain restoration, etc.)?

TBD

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

TBD

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

TBD

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

TBD

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Depends on specific data gaps chosen.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Community Based Social Marketing - Paso Groundwater Basin Community (water quality & quantity)

North County

Sponsoring Agency/Organization: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Address: **65 South Main Street, Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Provide a Brief Project/Program Description (1 to 2 sentences):

Launch a community based social marketing (CBSM) campaign to grow a community-wide understanding for local water issues (quality & quantity) in both the rural and urban communities.

Describe Need for Project/Program (1 to 2 sentences):

Severe water supply shortages and TMDL listings show that residents in the Paso Robles Groundwater Basin require urgent outreach to bring an understanding of how residents can participate in creating solution-oriented behavior changes for water conservation and basin preservation.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **North County at large**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **all**

Watershed (if known) See Map: **Multiple - Paso Robles Groundwater Basin**

Project Cost Range: **<$250K**

Project Cost (if known): **$172,000**

Source of Cost Estimate: **Agency**

Project Status: **Design Phase**

Describe status of permitting: **Permits not required**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA exempt

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **1/31/2016**

Identify proposed funding sources: **Grants, local municipality, Community Services Districts**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No, unless public education and behavior change provides the impact needed for this project

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No, unless public education and behavior change provides the impact needed for this project

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. Drought preparedness & education.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. Public awareness, education and behavior change.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. Public awareness, education and behavior change.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. Public awareness, education and behavior change.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. Public awareness, education and behavior change.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Public awareness, education and behavior change in disadvantaged communities.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Adding vegetation will be a recommended behavior change.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Awareness levels of water issues will remain as they are and water supplies will continue to diminish.

Other Comments:

Community Water Systems for Subdivided Regions Overlying the Paso Robles Groundwater Basin

North County

Sponsoring Agency/Organization: **Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)**

Contact Name: **Jerry Reaugh, Board President**

Affiliation: **Paso Robles Agriculture Alliance for Groundwater Solutions**

Address: **P. O. Box 1499, Paso Robles, CA 93447** Phone Number: **(805) 440-7300**

Email: **jerry@reaughj.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The drought of 2011-2013 in San Luis Obispo County has resulted in a drop in the groundwater levels of the Paso Robles Groundwater Basin, and some rural residents located within subdivided rural lands have reported their wells have gone dry. These wells are expected to have been drilled shallow and without full consideration as to the risk associated with declining groundwater wells, and rather than drill new wells for hundreds of rural residential parcels, the organization of a community water system and installation of the pipes, wells, and storage tank to deliver groundwater to these residents is a project that will provide a higher reliability to the rural residents.

Describe Need for Project/Program (1 to 2 sentences):

Rural residents need a highly reliable supply of water for their homes and to protect home's value. A community water system would provide a cost effective means to provide a highly reliable water supply to subdivided rural residents that reside on small parcels, typically between 1 and 10 acres.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Areas overlying the Paso Robles Groundwater Basin in the North San Luis Obispo County**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Rural residents**

Watershed (if known) See Map: **Salinas, Creston, Shandon**

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Grants and Bonds**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)?

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes - the project will provide a community water system to rural residents, and this new community system will be more reliable than the each rural resident's individual wells.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes - the project will provide a community water system to rural residents, and this new community system will be more reliable than the each rural resident's individual wells.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Improvements to water quality are unknown at this time.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Improvements to environment are unknown at this time.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will not have a net effect on the groundwater storage. The project will improve the

management of groundwater supplies to rural residents, and will improve the reliability of supply to homes and eliminate the problem of wells going dry during drought.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, the project will involve collaboration of rural residents with the California Water District that is being planned in the area. Alternatively, these pockets of rural residents may wish to be organized as County Service Areas.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Technically, no_ however, there are areas of densely subdivided rural residental areas that economically could be judged as DAC, but are presently not identified on the DAC list.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The cost of individual wells is higher than the cost to be connected to a community water system, so the economic impact to the rural residents will be higher and if a resident's well goes dry, their immediate captial cost will impact them. Also the reliability of water supply will be imparied for each individual attempting to manage their supply.

Other Comments:

Conjunctive Use and Groundwater Banking Evaluation

South County

Sponsoring Agency/Organization: **Oceano Community Services District**

Contact Name: **Mary Lucey**

Affiliation: **Oceano Community Services District**

Address: **1655 Front Street, Oceano, CA 93445** Phone Number: **805-704-1812**

Email: **marylucey15@yahoo.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project would provide an evaluation of conjunctive use and groundwater banking opportunities in the South County Sub-Region. A conjunctive use and groundwater banking program would provide an opportunity for the water users overlying the Santa Maria Groundwater Basin to effectively manage their portfolio of supply sources and improve their reliability.

Describe Need for Project/Program (1 to 2 sentences):

The groundwater supply sources of the South County Sub-Region have limited long-term (year over year) storage capability and could benefit from a reliable storage or conjunctive use program to improve realibility during drought periods.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **1655 Front Street, Oceano, CA 93445**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Multiple**

Watershed (if known) See Map: **Five Cities**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Conceptual**

Describe status of permitting: **Pending**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Pending

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

A conjunctive use and_or groundwater storage program could allow for additional water supplies to be utilized under different hydrologic conditions in order to maintain the reliability of existing supplies.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project could identify ways to maximize existing water rights and implement new water supply management policies and agreements to enhance the sustainability of all South County Sub-Region water supplies.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project could identify new water supply management policies and agreements, including operational changes, to enhance the sustainability of South County Sub-Region water supplies.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will evaluate water supply management policies and agreements to enhance the way in which the groundwater basin is monitored and managed.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education,

collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project will identify ways to implement new water supply management policies and agreements to enhance the way in which stakeholders collaborate to manage water resources.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes, this project will include evaluation of groundwater storage_conunctive use options for the community of Oceano.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

This project could identify relevant climate change concerns and asses the benefit of using a conjunctive use or groundwater banking program too address those concerns.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Other stakeholders within the Santa Maria Groundwater Basin would participate in the development of this project in order to develop a well informed evaluation.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Conservation Planning for North Coast Landowners

North Coast

Sponsoring Agency/Organization: **Upper Salinas-Las Tablas Resource Conservation District**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas-Las Tablas Resource Conservation District**

Address: **65 S. Main Street, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project will include the completion of conservation plans for rural and agricultural landowners in the North Coast region. Conservation plans will be completed by a certified conservation planner and will identify immediate and potential resource concerns and develop strategies for implementing on-site solutions and conservation practices. The goal of a conservation plan is to work with the landowner to develop a combination of different treatments that work together to address the overall natural resource needs on a site. Resources addressed in conservation plans include water, soil, economic, and human.

Describe Need for Project/Program (1 to 2 sentences):

The US-LT RCD has been working with a group of landowners in the North Coast community that have expressed a need for indentifying and developing strategies to address resource concerns on their property.

Project Website (if any):

None

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **n_a**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Rural Lands and Agricultural**

Watershed (if known) See Map: **Arroyo de la Cruz, Cambria, Cayucos**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Ready for Implementation**

Describe status of permitting: **None needed**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not needed

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Natural Resources Conservation Service, grants**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **San Simeon**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the program will work with landowners to identify areas where water is being used inefficiently and develop and implement strategies for more efficient use.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, water quality and management of water supplies will be addressed in conservation plans as well as ways it could be improved.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, the program will identify and address inefficient water systems and management through the development of conservation plans.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, water quality for on site use as well as point or non-point source contaminants will be addressed in conservation plans.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes, the project will give landowners the tools they need to implement conservation practices on their properties that will expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reduation and river_stream flow management as well as additional environmental concerns.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats

of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, the project will promote local management of groundwater resources by indentifiying areas where groundwater can be used more efficiently and effectively and implementing solutions.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes, the program will enhance watershed management by providing landowners with site specific conservation strategies and practices that address flooding concerns. Practices may include stream restoration, vegetation management, erosion control, etc.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, the program will provide education and outreach to the North Coast community on proper watershed management.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes, conservation plans will be improve water resources management and outreach in San Simeon.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes, conservation plans will identified areas where water and energy are being used inefficiently and how that can be improved upon.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The US-LT RCD will work with the Natural Resources Conservation Service to provide funding for landowners to implement conservation practices identified in their conservation plan.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Suitable conservation practices to address resource concerns on private land will not be identified. Resource concerns may not be neglected.

Other Comments:

County Service Area 10 - Clearwell Tank Roof Replacement

North Coast

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Eric Laurie**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-788-2758**

Email: **elaurie@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Cayucos Clearwell Tank, which holds the treated water prior to sending to distribution system, has multiple patches of corrosion in its exterior coating. The coating surface has deteriorated and needs to be completely repainted.

Describe Need for Project/Program (1 to 2 sentences):

This repair will greatly extend the life of the tank.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **1675 Cabrillo Avenue, Cayucos, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture**

Watershed (if known) See Map: **Cayucos Watershed**

Project Cost Range: **<$250K**

Project Cost (if known): **$160,000**

Source of Cost Estimate: **Contractor**

Project Status: **Conceptual**

Describe status of permitting: **2009_2010**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

2009_2010

Estimated ProjectStart Date: **7/1/1905**

Estimated ProjectEnd Date: **7/9/1905**

Identify proposed funding sources: **Local _ Operations & Maintenance**

What is the Percent Range of Matching Funds? **>51%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, the project will increase the life of the existing clearwell tank.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, an operational storage tank improves the operation efficiency of the water system.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, project maintains tank in service which provides water resource management and local control over

water system.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the Clearwell Tank Roof replacement is not implemented, the tank will continue to deteriorate and present operational issues for operation of the water system.

Other Comments:

County Service Area 10A - New 200k Gallon Storage Tank

North Coast

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Jeff Lee**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-1043**

Email: **jlee@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project will install a 210,000 gallon water storage tank (residential storage requirement only) at Tank Site 6 (as identified in the Cannon Tank Siting Study) and include the associated waterlines. The implementation plan is the continue work to produce an environmental document and obtain Coastal Commission approval before applying to USDA for a loan to fund design, right-of-way, permitting and construction of the project.

Describe Need for Project/Program (1 to 2 sentences):

The CSA 10A water system, at buildout, requires a total water storage capacity of 494,000 gallons, to meet current residential AWWA and CFC standards. The water system storage is currently deficient by approximately 210,000 gallons. The construction of a new 210,000 gallon water storage tank is necessary in order for the water system to meet the required storage for minimum fire flow requirement.Purpose: For property protection, safety, water quality improvement

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Chaney Avenue, Cayucos, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture**

Watershed (if known) See Map: **Cayucos Watershed**

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$1,100,000**

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **The environmental permitting process for this project is expected to be extensive since the project is within the jurisdiction of the CA Coastal Commission with possible visual impacts in the coastal zone.**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

late 2013

Estimated ProjectStart Date: **7/4/1905**

Estimated ProjectEnd Date: **7/7/1905**

Identify proposed funding sources: **USDA low-interest loan**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, project provides additional water storage to improve fire flow, water reliability and reservoir storage.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes.project provides additional reservoir storage for water reliabilitiy and for fire flow storage requirements.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. The CSA 10A water system, at buildout, requires a total water storage capacity of 494,000 gallons, to meet current residential AWWA and CFC standards. The water system storage is currently deficient by approximately 210,000 gallons. The construction of a new 210,000 gallon water storage tank is necessary in order for the water system to meet the required storage.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, project matches water quality of existing system.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, project allows for operational management of groundwater for fire flow and reservoir storage.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this project is not implemented, the water system will not meet the required storage capacity of 494,000 gallons to meet current residential AWWA and CFC standards.

Other Comments:

County Service Area 16 - New Storage Tank

North Coast

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Jeff Lee**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-1043**

Email: **jlee@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

Addition of this new storage tank increases water supply by a necessary 434,000 gallons.

Describe Need for Project/Program (1 to 2 sentences):

An additional 434,000 gallons of water storage is necessary to meet build-out needs and a fire-flow requirement of 2,750 gpm for two hours.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **To be Determined_ Master Plan suggests adjacent to existing tank on Toby Way, Shandon**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture**

Watershed (if known) See Map: **Shandon Watershed**

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$1,379,000**

Source of Cost Estimate: **Other**

Project Status: **Conceptual**

Describe status of permitting: **Programmed to start in FY15-16**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Programmed to start in FY15-16

Estimated ProjectStart Date: **7/1/2015**

Estimated ProjectEnd Date: **6/30/2017**

Identify proposed funding sources: **To be Determined.**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The most limiting demand condition for system storage is maximum day demand plus fire flow demand. The tank needs to meet three volume requirements: equalization storage, emergency storage, and fire storage. Equalization storage is required to meet water system demands in excess of what supply can provide during peak demand conditions. Emergency storage is the volume of water available to sustain sanitary needs in the event that an emergency cuts off the normal water supply. The amount of time to restore the normal water supply was estimated at 72 hours, and the basic sanitary demand per capita was estimated to be 50 gallons per day. Fire storage is required to meet the highest fire-flow demand in the CSA 16 water system, which is for school fire protection: 2750 gallons per minute for 2 hours.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

See above.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, the project will provide operational efficiencies for the water system, community build-out and fire flow.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, water quality from the water storage tank will match the water quality within the existing system.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, storage within a new water tank will provide flexibility and operational consideration for management of the groundwater in the Paso Robles groundwater basin.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented the community will not have sufficient water for community build-out and fire flow storage. This will limit the planning and operational decision making process for the community.

Other Comments:

County Service Area 23 (CSA 23) Water Reliability Program

North Coast

Sponsoring Agency/Organization: **County of San Luis Obispo - Public Works Dept**

Contact Name: **Jill Ogren**

Affiliation:

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408**

Phone Number: **805-781-5263**

Email: **jogren@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Provide a Brief Project/Program Description (1 to 2 sentences):

The CSA 23 Water Reliability Program was developed to provide alternatives for addressing additional sources of water for the Community of Santa Margarita for purposes of drought reliability or other water emergency. The program identifies multiple alternatives and projects. These are described in the Santa Margarita California (CSA 23) 2010 Water Supply Reliability Report prepared by the SLO County Department of Public Works. Some of the alternatives examined include a turnout on the State Water Pipeline (SWP), turnout and water treatment facility to use Nacimiento Lake water and local groundwater.

Describe Need for Project/Program (1 to 2 sentences):

The community of Santa Margarita currently has only one source of water - groundwater. It relies on two wells to meet its current water demands of approximately 175 acre feet per year. Well # 3 is a deep low producing well located near the SWP pipeline and provides approximately 25% of the community supply. Well #4 is a shallow high producing well on the west end of town that provides approximately 75% of the supply. During periods of low seasonal rainfall, water levels in the shallow well typically drop as in the drought of 1987-1992. In the event that water levels drop critically low in well #4 the remaining well cannot provide the community with the water needed to carry it through an extended or severe drought. In the event that the groundwater for some other reason such as an oil spill from the nearby railroad or other emergency rendering the groundwater unusable the community has no backup water supply. Providing an additional source of water provides the residents of CSA 23 access to potable water during a drought or other water emergency.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **At the southeast portion of the town near county well site # 3 on Encina Ave near Hwy 58**

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map:

Project Cost Range: **$500K-$1M**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **Land acquisitions_easements (0%)**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Two of the alternatives have a complete (100%) EIR - State Water turnout and Nacimiento Water turnout

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Grants,loans, CSA 23 Water Rates and Changes**

What is the Percent Range of Matching Funds? **>51%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

All though the alternatives proposed would provide a back-up supply of water during a drought, development of a water conservation plan for the community is considered very important no matter which alternative is implemented.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The community of Santa Margarita is reliant solely on two ground water wells, if either well were to be compromised through low ground water levels, water quality issues, or operationally the other well could not meet the community's demands for long. This project would allow for an emergency supply of water for the community.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

This is not a conservation effort but it does address long term drought preparedness through proposed connections to other sources. The project alternatives within the program would not be used to supply water to the community on an annual basis and would not provide for build out of the community. An additional water source could also provide for water system operational flexibility.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

All the alternatives proposed with the exception of development of additional groundwater have the benefit of perserving groundwater to some extent for the two creeks and its surrounding habitat by reducing the amount of pumping needed during a drought or water emergency .

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Some of the alternatives in the program provide groundwater benefits in that during periods of drought, the ability to use outside sources in lieu of groundwater helps to perserve groundwater to some extent for the two creeks and its habitat as well as surrounding ag lands

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

One of the alternatives presented in the program, involves a water tie-in with the State Water Project (DWR). Another alternative that was not included in the 2010 report in part due to the high costs associated with it but still viable involves tieing-into the water systems of two nearby water purveyors.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the proposal is not implemented, the community will have to abide by extreme water conservation as

mandated by the County Board of Supervisors through an ordinance in the event of a drought. In the event of an emergency that contaminates the ground water or renders the wells useless then requiring implementation of some emergency measures such as trucking water in. CSA 23 will continue to seek grant funding for this project or seek other alternatives to provide reliable water in a drought or other emergency. As this has been an issue since the drought of 1987-1992 many alternatives have been developed and analyzed for cost benefit. The 2010 Community report outlines a few of the options developed over the last 20 years.

Other Comments:

County Service Area 7A - Oak Shores - Interception Sewer System Replacement

North County

Sponsoring Agency/Organization: **County of San Luis Obispo**

Contact Name: **Eric Laurie, Project Manager**

Affiliation: **County of San Luis Obispo, Department of Public Works**

Address: **County Government Center, Room 207, San Luis Obispo, CA 93408**

Phone Number: **(805) 788-2758**

Email: **elaurie@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

Construct new gravity sewerlines, 8 lift stations, manholes, pipe bridges, and pump systems to replace the Eastside and Westside Interceptor Sewer System.

Describe Need for Project/Program (1 to 2 sentences):

The fact that raw sewage from over 500 homes now drains within pipelines beneath Lake Nacimiento, which is jointly used for recreation and drinking water supply for several of the County's communities through the Nacimiento Water Project, Nacimiento Water Company and Heritage Ranch Community Services District, and is pumped from an excessively deep wet well to the sewage treatment plant is cause for concern. Additionally, the sewer line was breached and began leaking in March, 2011, and needed emergency repairs. Further, accessing such a deep wet well for maintenance and repair of the pumps poses significant safety hazards associated with confined space entry. For these reasons, Public Works Department staff proposes to abandon the Interceptor and Lift Station #3 in exchange for a collection system that would drain above the lake level to the existing sewage plant.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Throughout Oak Shores community**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Rural Lands _ Agriculture _ Recreation**

Watershed (if known) See Map: **Nacimiento Watershed**

Project Cost Range: **>$5M**

Project Cost (if known): **$6,000,000**

Source of Cost Estimate: **Other**

Project Status: **Conceptual**

Describe status of permitting: **Risk Assessment document prepared _ Conceptual Planning**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

To be determined

Estimated ProjectStart Date: **7/1/2013**

Estimated ProjectEnd Date: **6/30/2020**

Identify proposed funding sources: **County funds to special districts and CSA 7A budget**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This project benefits include eliminating the risk that a leak or breach in the Interceptor Sewer system, now located in Lake Nacimiento, enters the lake, which is jointly used for recreation and drinking water supply for several of the County's communities through the Nacimiento Water Project, Nacimiento Water Company and Heritage Ranch Community Services District.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Relocation of the Intercepor sewerline out of the Nacimiento Lake waterline will help to protect the lakes drinking water supply_ protects and improves source water quality

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, relocating active sewer lines outside of a water supply will increase the operational efficiency and reliability of the water supply.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, relocating active sewer lines outside of an active water supply will increase the water quality of the water supply

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

This project will provide the opportunity for adjacent properties to develop to their best and highest use within the County Planning land use guidelines_ conserves natural resources_ watershed management and protection_ non-point source pollution reduction, management and monitoring_ ecosystem and

fisheries restoration and protection_ expands environmental stewardship

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Organizations involved in the project may include Monterey County Parks and the Oak Shores Community Association

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the existing sewer lines will not be relocated and the risk of water supply contamination will remain.

Other Comments:

County-wide Watershed and Creek Signage

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **US-LT RCD**

Contact Name: **Laura Edwards**

Affiliation: **US-LT RCD**

Address: **65 S. Main Street Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Installation of educational watershed and creek signage throughout the County of San Luis Obispo

Describe Need for Project/Program (1 to 2 sentences):

San Luis County is vast and county residents are not well informed about their watershed and the vital role watershed health plays in water quantity and water quality. A signage program will bring awareness to county creeks and water conveyance systems and enhance the knowledge of how to care for and protect our vital water resources.

Project Website (if any):

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **county-wide**

Nearest Cross Street or Street Address: **n_a**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **All**

Watershed (if known) See Map: **All**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Ready for Implementation**

Describe status of **n_a**

permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Bringing awareness to local creeks and watersheds as a whole will focus efforts on educating the public and reducing harmful impacts to watersheds.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. It provides for enhanced environmental stewardship and public education.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The proposed signage will serve as an educational tool allowing the genera public to be better connected and understanding of our local watersheds and the effect of watershed health on water quantity and quality.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood

control projects, system operations, stream/floodplain restoration, etc.)?

The project provides a component of watershed management through education and outreach.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project would provide educational and outreach to the general public and bring watershed health and planning efforts to the public in a visible way.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The project would include signage throughout the County including in all disadvantaged communities.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The US-LT RCD would partner with the Coastal San Luis RCD and other county wide agencies for this project.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Lack of education and understanding of watershed health and the impacts to our existing water supply and conveyance systems will decease the effectiveness of holistic watershed management planning efforts.

Other Comments:

Countywide Watershed Planning Phase II

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **Nicole Smith**

Affiliation: **Conservation Programs Manager**

Address: **645 Main St., Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **nsmith@coastalrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Countywide Watershed Planning Phase II project will build on planning efforts to better prioritize conservation in the County. The project may include 1. Developing a computer program with local data to improve land use and conservation planning, 2. Training sessions on the computer tool for land managers and long range land use planners, 3. Hosting working group meetings to guide the plan development and other tasks as determined by the end of Phase I.

Describe Need for Project/Program (1 to 2 sentences):

Improved land use planning with conservation in mind and conservation planning with county priorities in mind will direct limited funds to the highest priority projects. Conservation projects address the root of water problems and are an important piece of solving issues related to water supply, flooding, water quality and ecosystem functions.

Project Website (if any):

nsmith@coastalrcd.org

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **Countywide**

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **all land uses**

Watershed (if known) See Map: **all watersheds**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **N_A**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

N_A

Estimated ProjectStart Date: **7/6/1905**

Estimated ProjectEnd Date: **7/9/1905**

Identify proposed funding sources: **IRWM, in-kind contributions and potential grant funding. If the project is accepted into the regional grant additional work can be completed to produce a line item budget and estimate contributions.**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes indirectly

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes indirectly

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes indirectly

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes indirectly

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes indirectly

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes indirectly

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes indirectly

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Maybe.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

We will work with the USLT RCD, the County and local conservation groups.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Creston State Water Project Turnout

North County

Sponsoring Agency/Organization: **Requires formation of Water Purveying Entity**

Contact Name: **Claudia Salot-Engel**

Affiliation: **WRAC - At-Large Position**

Address: Phone Number: **805-239-9626**

Email: **clauda@thunderheadranch.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Consistent with the adopted Paso Robles Groundwater Basin Management Plan (March 2011) implementation strategies, this project would implement a supplemental water supply source to address the declining groundwater levels and to meet future water demand projections particularly in Creston (overlying basin's Creston Sub-Area). This project would require formation of a water purveyor entity, feasibility study, development of Subcontractor contract (and other necessary contracts), permitting, design, and implementation of a State Water turnout.

Describe Need for Project/Program (1 to 2 sentences):

The Resource Capacity Study prepared by the San Luis Obispo County Planning Department in November 2010 states that the Basin is near or at perennial yield – placing the basin at the most severe_ critical planning designation – and monitoring wells in the Paso Robles Groundwater Basin near the City of Paso Robles show continuous declining elevations indicating insufficient groundwater recharge to sustain current annual average pumping. Parts of the basin have experienced declining groundwater levels in excess of 70 feet over a relatively short period of time: 1997-2009, and those levels continue to drop.

Project Website (if any):

http:__www.slocountywater.org_site_Water%20Resources_Water%20Forum_

Subregion (See Map) **North County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Various**

Watershed (if known) See Map: **Estrella River**

Project Cost Range: **>$5M**

Project Cost (if known): **$50,000,000**

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **None**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

None

Estimated ProjectStart Date: **1/1/2015**

Estimated ProjectEnd Date: **1/1/2025**

Identify proposed funding sources: **Assessments, Water rates**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. Importing State Water as a new water supply source will offset the declining groundwater levels in the Paso Robles Groundwater Basin. This would utilize some portion of the District's 15,273 AFY of State Water excess allocation, assuming negotiations are successful with the SLO Flood Control District, CCWA, DWR, and Brenda Mesa.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. Creston is currently solely dependent on groundwater. Importing State Water will diversify Creston's water supply and will allow the community to meet water demands sustainably (e.g. when available State Water could be used in lieu of groundwater, and vice versa).

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. The supplemental water would diversify Creston's water supply portfolio, improving drought preparedness. For instance, when available State Water could be used in lieu of groundwater and vice versa, allowing flexibility in water supply management.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. As groundwater levels decline, the basin becomes more susceptible to general water quality degradation, including issues related to the increased geothermal activity noted in a recent USGS study. Providing additional water supplies to offset groundwater use will help to reduce this water quality degradation.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship,

ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. Developing a State Water turnout to Creston would offset groundwater use and would improve Paso Robles Groundwater Basin management. New water sources are needed as demand is at or near the basin's 97,700 AFY perennial yield, providing the threat of basin overdraft. Without new water supplies the groundwater basin levels will continue to decline.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. This program would require formation of a water purveyor entity, which could in turn improve Creston's water supply management.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Climate change models suggest increased periods of low rainfall and prolonged periods of drought. Providing State Water would improve Creston's water supply management abilities in times of droughts.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Partnerships would be required in order to successfully form a water purveyor entity. Partnerships would also be required to contract for the State Water Project connection and entitlement. This would involve DWR, CCWA, Brenda Mesa, the SLO Flood Control District, existing local State Water Subcontractors, and the water purveyor.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If a State Water turnout is not implemented or negotiations are unsuccessful, Creston will continue to be solely dependent upon groundwater. Consequently, the community will continue to contribute to the the

current water quality issues, declining levels, and other issues with overall basin management.

Other Comments:

A conceptual_initial project cost range could be $25,000,000 to $50,000,000. The project cost will depend on entitlement sought (acre-feet per year), as initial State Water buy-in cost is $25,000 per acre-foot. Additional costs would include costs associated with negotiations, contracting, formation of the water purveyor, feasibility studies, planning, design and construction activities.

CSA 10A - Storage Tank Roof Replacement

North Coast

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Eric Laurie**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-788-2758**

Email: **elaurie@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project will replace the roof of the Cayucos Water Treatment Facility main building, in County Service Area 10, ensuring the protection of the staff, equipment and facilities at the site.

Describe Need for Project/Program (1 to 2 sentences):

The metal roof on the main building at the Cayucos Water Treatment Facility, in County Service Area 10, is deteriorated and in need of replacement.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **1675 Cabrillo Ave, Cayucos, CA 93430**

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map: **Cayucos**

Project Cost Range: **$500K-$1M**

Project Cost (if known): **$569,000**

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **No permitting as of yet, though a Negative Declaration is expected for the project. Environmental Document expected October, 2014.**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA compliance expected October, 2014.

Estimated ProjectStart Date: **7/5/1905**

Estimated ProjectEnd Date: **7/7/1905**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. The new roof will protect the treatment facility's equipment, thereby ensuring the reliability of the the treated water supply.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the roof is not replaced on the Cayucos Water Treatment Facility's main building, the plant facilities and staff will be suceptible to the outside elements, and damage to vital plant equipment and facilities will occur, rendering the treatment facility non operational.

Other Comments:

CSA 16 - Waterline - Replace Centre Street

North County

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Jeff Lee**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-1043**

Email: **jlee@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project will replace and upgrade the existing 6-inch water line to a 10-inch water line on Centre Street from 1st Street to 5th Street in Shandon.

Describe Need for Project/Program (1 to 2 sentences):

The existing water system incurs unnecessary head losses due to the inadequate size ofthe main water line along Centre Street. This will enable Shandon to effectively meet daily normal demands.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Centre Street between 1st and 5th Street in Shandon**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Residential Suburban _ Residential Single Family**

Watershed (if known) See Map: **Shandon Watershed**

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$1,223,000**

Source of Cost Estimate: **Other**

Project Status: **Planning Phase**

Describe status of permitting: **Not started_ project is in preliminary engineering phase**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not started yet, programmed for FY14-15

Estimated ProjectStart Date: **7/1/2012**

Estimated ProjectEnd Date: **6/30/2017**

Identify proposed funding sources: **To be Determined**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. This project will upgrade approximatley 2,750 linear feet of the existing CSA16 waterline system from 6-inch to 10-inch on Centre Street between 1st and 5th Streets. The existing water system incurs unnecessary head losses due to the inadequate water line size on Centre Street.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The Shandon water system is transmitted from two wells, via an 8-inch PVC pipe along Centre Street until it reaches First Street and Mesa Grande Drive. At the intersection of Centre and First Street the distribution system networks into 4, 6 and 8-inch PVC which contribues to unnecessary head losses within the system.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, water quality from the water line improvements will match the water quality within the existing system.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the CSA16 water system will continue to incur head losses to the inadequate size of the water line. This will continue of the operational inefficiencies of the Shandon _ CSA16 water system.

Other Comments:

CSA 16 - Waterline - Upsize 1st Street

North Coast

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Jeff Lee**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-1043**

Email: **jlee@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project will replace and upgrade the existing 6-inch water line to a 10-inch water line along 1st Street between San Juan and Centre Streets to meet fire flow requirements of 2,750 gallons per minute for schools.

Describe Need for Project/Program (1 to 2 sentences):

This project enables schools to meet the Uniform Fire Code required fire protection of 2,750 gpm for 2 hours and reduces high head losses within current waterline systems.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **1st Street between San Juan and Centre Streets in Shandon, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Residential Suburban and Residential Single Family**

Watershed (if known) See Map: **Shandon Watershed**

Project Cost Range: **$500K-$1M**

Project Cost (if known): **$660,000**

Source of Cost Estimate: **Other**

Project Status: **Conceptual**

Describe status of permitting: **Not started_ project is programmed for FY17-18**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not started_ project is programmed for FY17-18

Estimated ProjectStart Date: **7/1/2013**

Estimated ProjectEnd Date: **6/30/2013**

Identify proposed funding sources: **To be Determined**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, the project will replace and upgrade the existing 6-inch water line to a 10-inch water line along 1st Street between San Juan and Centre Streets.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

This project enables schools to meet the Uniform Fire Code required fire protection of 2,750 gpm for 2 hours and reduces high head losses within current waterline systems.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, water quality from the water line improvements will match the water quality within the existing system.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education,

collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the CSA16 water system will continue to incur head losses to the inadequate size of the water line. This will continue of the operational inefficiencies of the Shandon _ CSA16 water system.

Other Comments:

CSA 16 - Waterline Loop N. 2nd to N. 3rd Streets

North Coast

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Jeff Lee**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-1043**

Email: **jlee@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project will result in the installation of approximately 400 linear feet of 6-inch pipe thereby looping the water mains on Estrella Street from 2nd Street to 3rd Street in CSA16 _ Shandon.

Describe Need for Project/Program (1 to 2 sentences):

This project will improve waterline circulation and fire flows and pressures as outlined in the 2004 Water System Master Plan. Looping of the waterline will result in improved water pressure and reduce head losses during periods of fire flow.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **between 2nd Street and 3rd Street in the community of Shandon**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Residential Suburban _ Residential Single Family**

Watershed (if known) See Map: **Shandon Watershed**

Project Cost Range: **<$250K**

Project Cost (if known): **$233,000**

Source of Cost Estimate: **Other**

Project Status: **Conceptual**

Describe status of permitting: **Not yet started, project is programmed for FY17-18**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not yet started, project is programmed for FY17-18

Estimated ProjectStart Date: **7/1/2017**

Estimated ProjectEnd Date: **6/30/2018**

Identify proposed funding sources: **To be Determined**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, the project will improve the existing water supply by increasing the operational efficiencies of the water system. The water system will be looped between 2nd Street and 3rd Street within the community of Shandon.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, this project will improve waterline circulation and fire flows and pressures as outlined in the 2004 Water System Master Plan. Looping of the waterline will result in improved water pressure and reduce head losses during periods of fire flow.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, the water quality within the looped water system will match the existing water quality.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this proejct is not implemented, the waterline will continue to operate and function as it currently does. The system would not be looped and would continue to incur head losses and reduced water pressure.

Other Comments:

CSA 16 (Shandon) Water Reliability Project

North County

Sponsoring Agency/Organization: **County of San Luis Obispo**

Contact Name: **Jill Ogren**

Affiliation: **San Luis Obispo County Public Works Department**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408**

Phone Number: **805-781-5263**

Email: **jogren@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

The CSA 16 Water Master Plan was developed in 2004 in order to more effectively plan for captial improvement projects and to provide alternatives for addressing additional sources of water for the Community of Shandon for purposes of drought reliability or response to a water emergency. Alternatives examined included a turnout on the State Water Pipeline (SWP), adding additional storage to meet Shandon's storage requirements, and local groundwater supply by the Paso Robles Ground Water Basin, which is currently being reviewed for supply and reliability issues.

Describe Need for Project/Program (1 to 2 sentences):

Shandon has several significant reasons to substantiate implementation of the CSA 16 State Water Connection Project. These include:Water Supply Reliability: Shandon relies solely on groundwater for its water supply. Ground water is susceptible to drought, water quality degradation, well contamination and climate change. Studies have shown that Shandon's wells and the Paso Robles Groundwater Basin are especially susceptible to all these risks. An additional water source would provide reliability to Shandon.Paso Robles Groundwater Basin Water Level Declines: Studies have shown that the Paso Robles Groundwater Basin has been declining and has reached its yield. Relying solely on the basin puts the future of Shandon's water supply at risk.Competing Water Rights: Shandon faces the potential of competing for groundwater rights with other entities that may have superior rights. As currently interpreted, California water rights indicate that overlying groundwater rights are superior to appropriative groundwater rights. Overlying groundwater rights are the rights of a property owner with property located above a common aquifer to reasonable use of that aquifer. Shandon's groundwater rights are considered appropriative groundwater rights. Thus, if there is not a surplus in the Paso Robles Basin after all reasonable and beneficial overlying rights are satisfied, Shandon's appropriative groundwater rights could potentially be challenged by entities with overlying groundwater rights.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **North County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Community of Shandon**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Residential Rural _ Agriculture**

Watershed (if known) See Map: **Shandon Watershed**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate: **Other**

Project Status: **Conceptual**

Describe status of permitting: **One project in design - State Water Turnout. Water System Master Plan developed_ potential projects identified_ larger discussion necessary associated with Paso Robles ground water**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

One alternative is has completed CEQA (EIR) - State Water Turnout

Estimated ProjectStart Date: **6/26/1905**

Estimated ProjectEnd Date: **12/31/2013**

Identify proposed funding sources: **Community Reserves**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This provides a new water supply for Shandon (currently only groundwater). The alternatives proposed would provide a back-up supply of water during a drought, however, development of a water conservation plan for the community is considered necessary no matter which alternative is implemented.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Shandon is reliant solely on ground water wells, if either well were to be compromised through low ground water levels, water quality issues, or operational issues the other well could not meet the community's demands for normal daily demand or fire flows. This project would allow for an emergency supply of water for the community. A water reliability plan could forward the discussion associated with teh Paso Robles Groundwater Basin.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, this project will conserve groundwater usage from the Paso Robles Groundwater Basin. Chosen alternatives address long term drought preparedness and provides sustainable, reliable water supply and a water reliability project would coordinate these efforts.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The alternatives proposed with the exception of development of additional groundwater have the benefit of perserving the groundwater basin and impacts to surrounding habitat by reducing the amount of pumping needed during a drought or water emergency .

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Program alternatives provide benefits to the Paso Robles Basin through reduced pumping during periods of drought, the ability to perserve groundwater and to benefit habita as well as surrounding agricultural lands.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

Shandon is within the Paso Robles ground water basin and will be involved in the overall discussion regarding the Paso Robles Groundwater Basin issues.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, Shandon will not be able to access their State Water allocation and will continue to rely solely on groundwater from the Paso Robles Groundwater Basin. Relying solely on groundwater leaves Shandon's only water supply susceptible to groundwater level declines, well contamination and competing water rights.

Other Comments:

Emergency Water Turnout for Heritage Ranch CSD

North County

Sponsoring Agency/Organization: **Heritage Ranch CSD**

Contact Name: **John D'Ornellas**

Affiliation: **Heritage Ranch CSD**

Address: **4870 Heritage Ranch Road, Paso Robles, CA 93446** Phone Number: **805-227-6230**

Email: **john@heritageranchcsd.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Project will provide an emergency turnout from the Nacimiento pipeline project, which allows the District receive raw lake water for its water treatment plant, during extreme drought conditions when the Nacimiento Lake level is at dead pool elevation (and thus lake water cannot be released through the Dam to the District's downstream gallery wells for river water intake to the District's water treatment plant). The District's customers include 3,500 residents, a public school, and a small commercial center.

Describe Need for Project/Program (1 to 2 sentences):

The Project will provide the District with an emergency means of accessing Nacimiento water that the District is already entitled to, during times of extreme drought. This will allow the District to provide the necessary potable water and fire protection water to serve its residents_customers, thus providing water for the protection of health and safety. Such an emergency water project has been mandated by the California Department of Public Health.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **See Project Street Address Above.**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Rural Residential**

Watershed (if known) See Map: **Nacimiento (10)**

Project Cost Range: **<$250K**

Project Cost (if known): **$40,000**

Source of Cost Estimate: **Engineer**

Project Status: **Design Phase**

Describe status of **A private property easement will be required, and District is in the early**

permitting: **stages of this process. Easement acquisition is anticipated by year-end 2013.**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

District will undertake the environmental review, and preparation of Negative Declaration or Exemption. Expected completion date, November 2013.

Estimated ProjectStart Date: **1/3/1900**

Estimated ProjectEnd Date: **5/15/2013**

Identify proposed funding sources:

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This Project will allow access to existing water allocation of Nacimiento Water, during periods of low to zero flow from Nacimiento Dam (when the District's existing Gallery Wells would not be able to keep up with water demands).

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

This project will provide water supply reliability to the community of Heritage Ranch, during times when Nacimiento Lake levels are too low (at dead pool elevation) to allow release of water downstream of the dam to the District's gallery wells.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

This is a drought preparedness project, see above description. The District would be subject to extreme water conservation during this time, and will minimize water demand during severe drought conditions.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The Project will not improve water quality.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring,

banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

This is a collaborative project between the Heritage Ranch CSD, County of San Luis Obispo, Nacimiento Commission customers to allow Heritage Ranch to be provided emergency water during extreme drought conditions.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Please see response to earlier question above on water resources management.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this Project is not implemented, the District and its residents run the risk of having no potable water and fire protection water during drought conditions_low lake levels, which is unacceptable from a health and safety standpoint. The District is under mandate from the State Department of Public Health to provide an emergency water supply under such conditions.

Other Comments:

Evaluating land-surface subsidence and potential groundwater-storage losses as part of assessing proposed water banking sites in Paso Robles Groundwater Basin

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization:

Contact Name: **Jill Densmore**

Affiliation: **USGS**

Address: **3130 Skyway Blvd, Ste 602, Santa Maria, CA and 6000 J St, Sacramento, CA**

Phone Number: **805-878-6201**

Email: **jidensmo@usgs.gov**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Use InSAR to evaluate land-surface subsidence and any associated groundwater-storage losses in the Paso Robles Groundwater Basin.

Describe Need for Project/Program (1 to 2 sentences):

Subsidence and any associated groundwater-storage losses need to be determined and included in the Paso Robles groundwater-flow model update for the model to adequately evaluate groundwater conditions in basin. Data from the evaluation of InSAR will provide essential input for updating the groundwater-flow model that will be used to assess proposed water banking sites in the basin.

Project Website (if any):

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **Although the primary focus of the study would be the Paso Robles and North Counry area, the InSAR interferograms cover parts of all three regions (including Oceano and San Miguel) depending on the position of the satellite.**

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agricultural, Industrial, Commercial, Rural Residential, Urban**

Watershed (if known) See Map: **Salinas, Creston, Shandon, Los Osos_Morro Bay, San Luis Obispo_Avila Beach, 5 Cities, Nipomo Mesa,**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Other**

Project Status:

Describe status of permitting: **na**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

na

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **County?, USGS, IRWM**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project will evaluate the extent of land-surface subsidence and associated groundwater-storage changes. The data provided by this project are needed as input for aquifer-storage properties in the groundwater-flow model

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The data from this project will improve the accuracy of the Paso Robles Basin groundwater-flow model. The data from this project are essential to provide input in the groundwater-flow model that will be used to assess the feasibility of groundwater banking. Without this data, the groundwater-flow model will lack input on aquifer-storage properties needed in the subsidence package. The subsidence package is a key element in evaluating the existing water supply, the potential for groundwater banking, and the sustainability of water supply in the basin.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The data from this project can be used in guiding placement of water-conveyance infrastructure to help prevent additional maintenance and operational costs because of damage resulting from land-surface subsidence.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

na

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

This project will aid decision-makers in groundwater-resource management by delineating the areal extent of land-surface deformation in the basin and evaluating the degree of compaction (most importanly, the inelastic portion) and any resulting groundwater-storage losses in areas of subsidence. By identifying susceptible areas, effective groundwater-resource management can be determined in order to minimize groundwater-storage losses in the basin and help protect groundwater recharge and banking areas.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

This project will help to improve groundwater management of the Paso Robles Groundwater Basin by providing a better understanding of the aquifer system and groundwater storage within the basin. The data from this project is essential for assessing the effectiveness of groundwater banking_recharge

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The project has the potential to aid in flood management by minimizing system operations costs that can arise as a result of infrastructure damage in areas of land-surface deformation.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

This project will improve water-resource management in the Paso Robles Basin by providing model input needed for a water-resource program (the existing groundwater-flow model of the Paso Robles Basin).

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Although the focus of the study would be the Paso Robles and North Counry area, InSAR interferograms produced for this study cover two disadvantaged communities (Oceano and San Miguel). If there are land-surface deformation issues in these areas, they will be identified during this study.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

na

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

Discussions have occurred between a few interested parties (the County and the local Regional Conservation District).

Describe what impacts, if any, will occur if the Project/Program is not implemented:

A groundwater-flow model for the Paso Robles Groundwater Basin is currently being updated. The original model did not discuss simulating subsidence, suggesting that the subsidence package was not used. Without the package to simulate subsidence, this updated model will be ineffective in assessing the proposed groundwater banking scenarios and future water conditions. The areal extent of land-surface subsidence and associated groundwater-storage changes cannot be adequately modeled without the data needed to calibrate the subsidence package. The subsidence package simulates land-surface subsidence, allows for surface and subsurface processes to be linked to land subsidence, and splits out elastic and inelastic compaction which improves calibration of critical heads to better delineate the two types of compaction.

Other Comments:

Feasibility Study for Recycled Water for Agricultural Use

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **G.W. Bates**

Affiliation: **Coastal San Luis Resource Conservation District**

Address: **645 Main Street, Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **gbates@coastalRCD.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project is intended to study the feasibility of recycling wastewater for agricultural re-use within the Coastal San Luis Resource Conservation District. The study will examine the opportunities for using recycled water from five wastewater treatment plants including: The City of San Luis Obispo, The City of Pismo Beach, South County Sanitation District, The City of Morro Bay, and the Nipomo Community Services District. The project will include the following components:

1. Assessment of cost and feasibility for producing agricultural quality recycled water at each plant.
2. Assessment of alternatives and costs for distributing recycled water to agricultural users.
3. Basement of potential environmental and agricultural impacts of recycled water use.
4. Development of an advisory committee consisting of farmers in the district.
5. Assessment of permit requirements and potential funding sources. The project will expand on existing planning efforts.

Describe Need for Project/Program (1 to 2 sentences):

Agricultural water use accounts for a large portion of all the water used in the County. Using recycled water for agriculture can reduce groundwater pumping and help conserve the existing supply for domestic use.

Project Website (if any):

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban and Agricultural**

Watershed (if known) See Map: **Multiple watersheds in the Coastal San Luis Resource Conservation District**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

NA

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. The proposed project will evaluate the potential for using recycled water for agriculture.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. The proposed project will lay the groundwork for increased sustainability and improved water supply management.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. This project will study the feasibility of transferring wastewater to agricultural areas.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. This project will study the feasibility of wastewater for agricultural use thus making higher quality water available for other uses.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. Agricultural water is primarily pumped from aquifers. Using recycled water for agricultural irrigation will reduce the amount of groundwater pumped for agricultural use.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. A major component of this project is outreach aimed at understanding the needs and concerns of the agricultural community with respect to recycled water use.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

This project will involve partnerships with the cities and agencies that treat wastewater within the Coastal San Luis Resource Conservation District.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Failure to utilize recycled water effectively will result in continued waste of this resource and continued reliance on groundwater for agricultural use.

Other Comments:

Flood Control Zone 3 - Lopez WTP Sludge Bed 1 & 2 Upgrades

South County

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control & Water Conservation District**

Contact Name: **Jeff Lee**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-1043**

Email: **jlee@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project consists of replacement of existing structures, piping and installation of an impermeable liner for Sludge Bed No. 1 and No. 2 at the Lopez Water Treatment Plant, improving sludge drying efficiency at the plant.

Describe Need for Project/Program (1 to 2 sentences):

The project will increase the sludge drying efficiency at the Lopez Water Treatment Plant. The sludge beds do not currently have an impermeable liner to keep groundwater and water from Bed No. 2 from seeping into its sludge, which greatly increases sludge drying times.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **2485 Lopez Drive, Arroyo Grande, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Industrial**

Watershed (if known) See Map: **Five Cities Watershed**

Project Cost Range: **$250K-$500K**

Project Cost (if known): **$325,000**

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **Project is in planning phase**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Technical studies complete, preliminary design underway to allow final CEQA document to be prepared. CEQA estimated to be completed in July 2015.

Estimated ProjectStart Date: **7/1/2016**

Estimated ProjectEnd Date: **6/30/2018**

Identify proposed funding sources: **Flood Control Zone 3 District, Grant**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the project improves water use efficiency and system reliability.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, the project improves sustainability of the water supply.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. project increases the operating efficiency of the sludge drying beds.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. increased operating efficiency of the sludge drying beds will lead to environmental benefits.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local

control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project is being undertaken by Flood Control Zone 3 (Lopez Project). The District will provide project management coordination, environmental review and permitting activities in coodination with the FCZ Advisory Committee. The Lopez WTP, where the membrane rack addition project is located, treats and provides water for the San Luis Obispo County's Flood Control Zone 3, which includes the Cities of Arroyo Grande, Grover Beach and Pismo Beach and the unincorporated areas of Oceano and CSA12 - Avila Beach.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the treatement plant would continue to operate under existing conditions. The project increases the sludge drying efficiency at the Plant which could lead to improved the ground water in the area.

Other Comments:

The Lopez WTP sludge drying operations will need to be evaluated prior to the implementation of the project. The project scope, schedule and cost are roughly estimated at this time based on a basic understanding of the project scope.

Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek

South County

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **Nicole Smith**

Affiliation: **Conservation Programs Manager**

Address: **645 Main St., Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **nsmith@coastalrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek will guide implementation of floodplain projects at the watershed scale in order to reduce downstream flooding and sediment loads, encourage groundwater infiltration, and expand riparian_floodplain habitat. Building on recommendations and project locations of the Arroyo Grande Creek Erosion, Sedimentation, and Flooding Alternatives Study (2006), the Feasibility Plan will be the next step towards reducing flood risks along Arroyo Grande Creek Meadow Creek and Oceano lagoon. Tasks would include 1. Determine the feasibility of floodplain sediment capture projects identified in the Arroyo Grande Creek Erosion, Sedimentation, and Flooding Alternatives Study (2006),2.Produce floodplain designs for two (2) high priority floodplain projects, i.e. Carpenter Canyon and Los Berros parcels, 3Determine the feasibility of erosion control projects identified in Alternative Study, 4. Determine opportunities and constraints for flood easements, 5. Develop potential funding options and 6. Conduct workshops to discuss connections between floodplains, groundwater, stream flow and goals and outcomes of the Plans.

Describe Need for Project/Program (1 to 2 sentences):

The proposed Feasibility Plan will provide the next step towards reducing flood risks along Arroyo Grande Creek and Ocean lagoon through the implementation of erosion and floodplain projects that reduce sediment loads and subsequent loss of channel capacity, and retain and infiltrate flood waters.

Project Website (if any):

http:__www.coastalrcd.org_

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Properties adjacent to Arroyo Grande Creek and its tributaries, in the watershed**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **agriculture, rural residential, rural lands**

Watershed (if known) See Map: **Arroyo Grande Creek**

Project Cost Range: **$250K-$500K**

Project Cost (if known): **$450,000**

Source of Cost Estimate: **Engineer**

Project Status: **Conceptual**

Describe status of permitting: **no permitting is started.**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

N_A

Estimated ProjectStart Date: **7/6/1905**

Estimated ProjectEnd Date: **7/9/1905**

Identify proposed funding sources: **IRWM, DWR, in-kind and grants. If the project is accepted into the regional grant additional work can be completed to produce a line item budget and estimate contributions.**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

N_A

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

N_A

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

N_A

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program_ protect and improve source water quality_

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Purchase, preserve, enhance, and restore land in ecologically sensitive ecosystems_ manage stream flows to fish bearing streams, support a region-wide fish passage barrier prevention and removal program, and

implement fish friendly stream and river corridor restoration projects_ conserve natural resources

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Identify areas of known or expected conflicts and target stakeholders on specific actions thatthey should take to help protect groundwater basin quality and supply

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan_ - watershed management, flood risk management, education and outreach the Regional Water Quality Control Board (RWQCB) region or subdivision_ or other region or sub-region specifically identified by DWR. Effectively integrate water management with land use planning_ distinguish the root cause of flooding problems stemming from new development, existing development, and mandatory regulation_ integrate ecosystem enhancement, drainage control, and natural recharge into development projects.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

N_A

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

N_A

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Improved floodplain management would increase infiltration and could improve reliability of creek adjacent water supply wells and improve habitat health for sensitive species like steelhead trout.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

Primary partner would be creek adjacent landowners

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The project is closely tied to downstream efforts in the San Luis Obispo County Flood Control Channel, Zone 1_1A to improve flood protection with the construction of an overflow channel designed to encourage sediment movement and maintain tree canopy for habitat. The proposed project would determine feasible locations for restoring floodplains in order to capture sediment and attentuate floodwaters. When

implemented these outcomes may reduce maintenance costs for sediment removal and reduce flood waters reaching the Zone 1_1A channel. If not implemented, flood and erosion issues in the watershed will not be addressed at_near the source but instead at the end-of-pipe or in this case at the end bottom of the watershed.

Other Comments:

Groundwater Monitoring Program and Modeling Program for the Paso Robles Groundwater Basin

North County

Sponsoring Agency/Organization: **Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)**

Contact Name: **Jerry Reaugh, Board President**

Affiliation: **Paso Robles Agriculture Alliance for Groundwater Solutions**

Address: **P. O. Box 1499, Paso Robles, CA 93447** Phone Number: **(805) 440-7300**

Email: **jerry@reaughj.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The County has a groundwater monitoring program throughout the County, but the utilization of the data on a regular basis to understand they dynamics of the Paso Robles Groundwater Basin occurrs sporadically. Furthermore, the monitoring program is conducted by measuring water in active wells. There is a need for installing monitoring wells within the basin at locations where there are data gaps. The groundwater model that the County is currently having develolped should be utilized each year to make predictions and monitor the performance of the Paso Robles Groundwater Basin.

Describe Need for Project/Program (1 to 2 sentences):

Monitoring wells need to be installed within the Paso Robles Groundwater Basin. The County's groundwater model needs to be utilized on a regular basis to understand the performance of the entire hydrology of the Basin.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **North County of San Luis Obispo overlying the Paso Robles Groundwater Basin**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Agricultural, Rural Residential**

Watershed (if known) See Map: **Salinas, Creston, Shandon**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Grants and Bonds**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes - the monitoring and modeling will provide information on what infrastructure might be necessary to improve the health of the Paso Robles Groundwater Basin.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes - the monitoring and modeling will provide information on water quality of the Paso Robles Groundwater Basin.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes - the monitoring and modeling will give all stakeholders and understanding of the Basin's performance, and provide a means to justify the water balance hydrology of the Basin

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes - too often the stakeholder's understanding of the performance of the Basin is complicated, and the on-going modeling of the basin will improve this understanding and improve collaboration between communities, agricultural, and rural residents

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

There are several water purveyors over the Basin who will likely be partners in the project, including but not limited to, City of Paso Robles, Atascadero Mutual Water Company, CSD's of Templeton, San Miguel and Ground Squirrel Hollow, Green River Mutual Water Company, Shandon CSA, and Creston Advisory Board.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The situation that is occurring in the Basin this year with wells going dry likely could have been predicted well in advance of the crisis had the Basin modeling been ongoing each year, and furture crisis issues will contrinue to occur if the basin is not properly managed and monitored.

Other Comments:

Irrigation Distribution System at Paso Robles Airport Area

North County

Sponsoring Agency/Organization: **Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)**

Contact Name: **Jerry Reaugh, Board President**

Affiliation: **Paso Robles Agriculture Alliance for Groundwater Solutions**

Address: **P. O. Box 1499, Paso Robles, CA 93447** Phone Number: **(805) 440-7300**

Email: **jerry@reaughj.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The first phase of the irrigation distribution system will be installed to distribute water from the Nacimiento Water Project to the area north of Paso Robles in the vicinity of the airport that is experiencing significant declines in the groundwater elevations. Future phases of this system will include off-stream reservoir storage and connection to the Paso Robles wastewater treatment plant once teritary treatement process has been implemented.

Describe Need for Project/Program (1 to 2 sentences):

The immediate need for this project is (1) the formation of a California Water District, (2) a Nacimiento Water Delivery Entitlement Contract with the San Luis Obispo County Flood Control and Water Conservation District for the remaining Reserve Water of about 6,095 acre-feet per year, and (3) capital to permit, design, and construct the distribution system to convey the Nacimiento Water to the region to stabilize and_or improve the groundwater elevations via in-lieu recharge.

Project Website (if any):

http:__www.praags.org_

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Wellsona Road, Airport Road, and Buena Vista Road**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Agricultural, Rural Residential, Golf Courses**

Watershed (if known) See Map: **Salinas River**

Project Cost Range: **>$5M**

Project Cost (if known): **$21,500,000**

Source of Cost Estimate: **Engineer**

Project Status: **Conceptual**

Describe status of permitting: **Not started**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not Started

Estimated ProjectStart Date: **7/1/2014**

Estimated ProjectEnd Date: **12/31/2016**

Identify proposed funding sources: **Bonds, Ag Grants**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project will recharge the Paso Robles Groundwater via in-lieu recharge by using Nacimiento Water Project water for irrigation. The Participants in the Nacimiento Water Project can bank some of their Nacimiento Water Project entitlement in the local groundwater. Futue phases of the project includes an off-stream reservoir in the vicinity for the storage of Nacimiento Water during times when demand is low, thus allowing for the San Luis Obispo County Flood Control and Water Conservation District's entitlement to be stored within the boundaries of the District rather than lost down the Salinas River to Monterey County_ therefore improving the water use efficiency of the water supply. A recreation benefit can be realized with this off-stream storage.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

This project will maximize the accessibility to an existing water supply, the Nacimiento Water Project. The County has rights to 17,500 acre-feet per year from Lake Nacimiento divided into lakeside use (1,750 AFY) and 15,750 AFY for distribution via the Nacimiento Water Project (NWP). The water rights to lake water is by contract dated October 17, 1959, between Monterey and San Luis Obipso County. The NWP was commissioned for operation on Feb 1, 2011, and to-date has not conveyed the entire entitlement. The proposed irrigation distribution project will maximize the NWP's conveyance of lake water. The water applied to the irrigated lands from the NWP will improve the salt nutrient applied to the land because the NWP water is lower in disolved salts than the pumped groundwater. The local stakholders in the region include irrigated agriculture, rural residents, the City of Paso Robles, and golf courses. All stakeholders will benefit as the groundwater elevation will stablize and_or improve over time.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project will improve the sustainability of the groundwater supply during a drought by delivering irrigation water form the surface supply of the Nacimiento Reservoir. A 2004 study by Boyle Engineering describes Nacimiento Reservoir supply to be a highly reliability local source of water to San Luis Obispo. The hydraulic capacity of the irrigation distribution pipes can be sized to maximize the benefical uses in the region, for example, to apply surface water into the region for irrigation and off-stream storage, and reverse the flow to supply water to participating agencies who participate in banking within the

groundwater basin.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The demand on groundwater supplies in this region will be reduced, and thus the groundwater quality will improve and_or stabilize, especially in the resistance of the deeper geothermal waters from entering into the Paso Robles Basin. The application of the Nacimiento water for irrigation will contain less dissolved salts than the groundwater supply, which improves the regions salt nutrient loads.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

A future phase of the project will be the construction of an off-stream reservoir to hold Nacimiento water during period of time when irrigation demand is low. This off-stream reservoir will be an earthen strurture located over the groundwater basin and will provide direct recharge to the basin. The reservoir can be multi-purpose to support recrecation activities (canoeing, kayaking, etc.). The entire irrigation system, once constructed, will serve as a functioning outdoor classroom for field trips to educate students on the importance of developing multifaceted water resource projects.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project greatly improves the management of the groundwater resources in the Paso Robles basin. The project will stablize and_or improve groundwater elevations via in-lieu recharge using surface supplies for irrigation and reducing the demands on the groundwater supplies. Participants in the Nacimiento Water Project can bank water in the region. The goal of the project is to reduce the threat of overdrafting the Paso Robles Groundwater Basin in this localized area, which in recent years has experienced these threats.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

This project will be utilized as a fully functioning educational tool for school field trips, the annual agricultural tour, political and civic organizations, and other state agencies, to demonstrate the multi-faceted management and utilization of water resources to the benefit of all sources and users. The combined efforts of blending surface and groundwater supplies improves the reliability and water quality of the groundwater resource. The implementation of the infrastructure advances the opportunity to bank water for the local water purveyors. All of these water resources are controlled by local stakeholders.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater

treatment)?

San Miguel should be helped by this project because the objective is to fill the 'cone of depression' in the groundwater which will eventually increase the groundwater levels in the San Miguel area.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No - future projects by the new California Water District will look for solar opportunities and hydroelectric energy recovery opportunities.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

Potential partners (outreach to these has not occurred yet because the formation of this new California Water District is at its infancy) include: City of Paso Robles for banking their Nacimiento entitlement, funding the tertiary process of their wastewater treatment plant, and distributing their tertiary treated recycled water_ the Participants in the Nacimiento Water Project for banking their water entitlement_ the San Luis Obispo County Flood Control and Water Conservation District for the banking and_or carryover storage of Nacimento Water Supplies in the County.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Groundwater levels will decline. Groundwater quality will degrade. Socioeconomic impacts will impact the county without a reliable supply of irrigation water.

Other Comments:

LID Pilot Program

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Address: **65 South Main Street, Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Conduct multiple low impact development retrofit installments using a cost-shared rebate program. Work directly with local community members to install public and private projects to promote rainwater catchments.

Describe Need for Project/Program (1 to 2 sentences):

Drought has exacerbated water shortages in North San Luis Obispo County. Immediate programs are needed to enhance water retention. The LID program helps to slow, sink and spread rainwater more effectively and efficiently.

Project Website (if any):

Subregion (See Map) **Regional** **(2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **North Coast & North County**

Nearest Cross Street or Street Address: **Multiple**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Rural & Urban Communities**

Watershed (if known) See Map: **Santa Rosa Creek & Salinas River. It also impacts additional watersheds.**

Project Cost Range: **<$250K**

Project Cost (if known): **$10,000**

Source of Cost Estimate: **Other**

Project Status: **Ready for Implementation**

Describe status of **Permits not required**

permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA exempt

Estimated ProjectStart Date: **6/1/2014**

Estimated ProjectEnd Date: **6/30/2015**

Identify proposed funding sources: **Grants, landowner cost share, NRCS**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **San Simeon**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. Stormwater management will be optimized to retain water.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. Urban and rural users will be able to use rainwater that is held with LID catchment devices.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. Rainwater system retrofits will enhance water supplies and provide drought preparadness education.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. LID sinks, slows and spreads rainwater which helps filter out pollutants and slows velocity to control temperature.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. Expands resource stewardship and public education.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. Encourages recharge to groundwater via improved percolation and catchment systems.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. LID has multiple beneficial flood management components.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. The program uses public outreach via LID demonstration projects.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Public education will be emphasized in disadvantaged communities.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Water supply improvement and flood management address climate change concerns.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

LID will likely not be used much since people still do not understand its function or purpose.

Other Comments:

The project cost estimate provided is only for one project. There are multiple projects, up to $10,000 per project

Lopez Lake Spillway Raise Project

South County

Sponsoring Agency/Organization: **Zone 3 Agencies (Cities of Arroyo Grande, Grover Beach and Pismo Beach, Oceano Community Services District and County Service Area 12)**

Contact Name: **Ben Fine**

Affiliation: **City of Pismo Beach**

Address: **760 Mattie Rd Pismo Beach, CA 93449** Phone Number: **(805) 773-4656**

Email: **bfine@pismobeach.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project will include design and construction of inflatable rubber dam spillway gate_permanent spillway raise at the Lopez dam to raise the height of the dam, expand storage capacity and increase the safe yield of the Lopez Reservoir.

Describe Need for Project/Program (1 to 2 sentences):

Maintaining a diversified water supply portfolio is essential to enable a public utility to reliably supply water to its customers. Expanding the storage capacity of the Lopez Reservoir would provide the South County Sub-Region with increased water supply reliability and decrease dependence upon water from the State Water Project and Santa Maria Groundwater Basin.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Lopez Reservoir**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Ag, Rural, Etc.**

Watershed (if known) See Map: **5 Cities**

Project Cost Range: **>$5M**

Project Cost (if known): **$1,500,000**

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **Pending**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Pending

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Not Available**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This project would provide additional local surface water supply (500 -1,000 AFY) to the South County Sub-region for a variety of potential uses (e.g. urban, agriculture, rural, environmental, etc.).

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

This project would improve the storage capacity of Lopez Reservoir and enable the capture of additional water during high rainfall years. The additional storage would allow for the safe yield of the reservoir to be increased without causing the lake to drop below the minimum pool level.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Increasing the storage and yield from Lopez Reservoir will provide the Zone 3 agencies with the flexibility to reduce dependence upon State Water Project and water pumped from the Santa Maria Groundwater Basin. Water from Lopez Reservoir is not vulnerable to seawater intrusion and reduced deliveries caused by environmental issues in the Sacramento_San Joaquin Delta.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The availability of additional surface water will allow the Zone 3 agencies to reduce groundwater pumping and thus help avoid future occurrences of seawater intrusion in the Santa Maria Groundwater Basin. It would also provide additional surface water that could be released to Arroyo Grande Creek for agriculture irrigation and groundwater recharge.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Increasing the storage in Lopez Reservoir would provide additional flexibility to manage environmental releases to Arroyo Grande Creek. It would also reduce the reliance on imported State Water Project water, which requires significant pumping to deliver from the Sacramento_San Joaquin Delta to San Luis Obispo County.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Providing additional surface water supply for the Northern Cities Management Area (NCMA) agencies overlying the Santa Maria Groundwater Basin will allow for improved conjunctive use of these agencies' surface and groundwater supplies. During periods of decreased groundwater recharge, agencies could utilize surface water supplies and limit pumping to avoid conditions within the groundwater basin that could lead to seawater intrusion. Additionally, during periods of high groundwater storage, these agencies could utilize their groundwater supplies and reduce surface water imports.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Increasing the height of the spillway would reduce the frequency and magnitude of spills occurring from the Lopez Reservoir. This will result in lower peak flows in Arroyo Grande Creek and reduced flood risk. Installation of an inflatable spillway gate atop the spillway would provide additional flexibility for controlling releases from Lopez Reservoir.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Implementation of this project will include coordination amongst the urban, agriculture, environmental, and rural stakeholders in and around Lopez Reservoir and Arroyo Grande Creek. This project will also be coordinated with the development of the Habitat Conservation Plan for the existing Lopez Reservoir.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

This project will provide additional surface water for the community of Oceano. Additionally, it will enable all of the Northern Cities Management Area agencies to reduce groundwater pumping and improve the health of the Santa Maria Groundwater Basin, one of Oceano's sources of supply.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Obtaining additional local surface water will reduce the need to import water from the State Water Project, which requires significant amounts of energy and consequently generates significant greenhouse gases emissions. Water from Lopez Reservoir is delivered via gravity from the reservoir to the Zone 3 agencies and also includes the potential for hydropower generation.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Increased yield from the Lopez Reservoir by the Zone 3 agencies will reduce overall demands on the Santa Maria Groundwater Basin and will help all of the agencies within the basin.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If not implemented, the Zone 3 and NCMA agencies will continue to rely upon their current groundwater and surface water supplies. However, these water supply resources are not 100% reliable: the Santa Maria Groundwater Basin has the potential to be impacted by seawater intrusion_ and the availability of State Water Project water is dependent upon hydrologic conditions throughout the state and environmental conditions within the Sacramento_San Joaquin Delta.

Other Comments:

Lopez Pipeline Improvements

South County

Sponsoring Agency/Organization: **Northern Cities Management Area (NCMA) Agencies: Oceano Community Services District (OCSD)_ City of Arroyo Grande_ City of Grover Beach_ City of Pismo Beach**

Contact Name: **Greg Ray**

Affiliation: **Grover Beach Director of Public Works_City Engineer**

Address: **154 S. Eight Street, Grover Beach, CA 93433** Phone Number: **(805) 473-4535**

Email: **gray@grover.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Lopez Pipeline Improvement project encompasses the following projects to increase the capacity of the Lopez pipeline and improve water supply reliability to the South County Sub-Region: the 33' pipeline pigging project_ a pigging evaluation and updated capacity assessment_ and design and construction of pipeline improvements. This project will work in conjunction with the San Luis Obispo County Flood Control & Water Conservation District's project to install additional membranes at the Lopez Water Treatment Plant to increase the overall capacity of the Lopez Project and to improve the water supply reliability for Southern San Luis Obispo County.

Describe Need for Project/Program (1 to 2 sentences):

The current condition of the Lopez pipeline does not provide sufficient delivery capacity to allow the Zone 3 agencies to meet their peak demands with available surface water. Because of this capacity limitation, these agencies pump groundwater, even when they have excess surface water entitlements and allocations available to them.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Zone 3-San Luis Obispo County**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Multiple**

Watershed (if known) See Map: **5 Cities**

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$3,400,000**

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **Pending**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Pending

Estimated ProjectStart Date: **10/1/2013**

Estimated ProjectEnd Date: **11/1/2017**

Identify proposed funding sources: **Zone 3 CIP Budget and Zone 3 Agencies**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This project is part of a larger program to improve the capacity of the Zone 3 storage, treatment and water distribution systems. The entire program includes upgrades to the Lopez Water Treatment Plant (WTP), the Lopez Pipeline and the potential expansion of the Lopez Reservoir through the Lopez Lake Spillway Raise Project. The Lopez Lake Spillway Raise Project will increase the yield and the WTP and pipeline projects will improve the operational flexibility of the Lopez Project.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

This project is designed to increase the delivery capacity of the Lopez Pipeline and will improve the ability of the pipeline to deliver water to the Zone 3 agencies. Currently during the summer months, the capacity of the Lopez Pipeline limits the Zone 3 agencies ability to deliver sufficient water to meet the peak demands and forces these agencies to pump groundwater. With improved pipeline capacity, these agencies will be able to reduce their groundwater pumping and utilize additional surface water supplies.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The Lopez Pipeline Improvements Project will enable the Zone 3 agencies to deliver additional surface water supplies and minimize groundwater pumping within the Santa Maria Groundwater Basin (SMGB).

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Increasing the capacity of the Lopez Pipeline will provide for additional opportunities for the Zone 3 agencies to blend their surface water and groundwater supplies. Historically, some of the Zone 3 agencies' wells have been high in nitrates and have required treatment or blending to ensure that water delivered to their customers does not exceed the California Department of Public Health's Maximum Contaminant Levels.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Improving the capacity of the Lopez Pipeline will enable the Zone 3 agencies to increase surface water deliveries and thus reduce groundwater pumping to help prevent future occurrences of seawater intrusion. Currently, the hydraulic grade lines of the City of Grover Beach and the OCSD' s distribution systems limit the capacity of these agencies' turnouts and the overall capacity of the Lopez pipeline. Improving the capacity of the Lopez Pipeline will allow Grover Beach and OCSD to increase their turnout capacity, reduce groundwater pumping, and also improve the delivery capacity for all of the other agencies on the Lopez pipeline.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Increasing the capacity of the Lopez Pipeline will allow the Zone 3 agencies to increase the drawdown rate to help prevent uncontrolled spills from Lopez Reservoir. This will enable the Zone 3 agencies to reduce the frequency and the magnitude of spills to Arroyo Grande Creek.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Implementation of the Lopez Pipeline Improvements Project will require coordination and collaboration amongst the Zone 3 agencies to evaluate and identify the pipeline improvements that provide the greatest benefit to residents of the South County Sub-Region. These benefits will both be direct, in the form additional surface water deliver capacity and indirect, in the form of reduced groundwater pumping within the SMGB, reduced seawater intrusion risks and increased water supply reliability.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Oceano is a DAC and is a participating agency in this Project. Oceano's DAC status allows for increased flexibility on DWR's requirements for an implementation project. DACs are eligible to submit projects that need additional study to determine the most effective construction project to address their needs. This project's second phase includes a capacity evaluation that will be used to determine the most efficient improvement for increasing the capacity of the Lopez pipeline and increasing deliveries to Oceano and the other Zone 3 agencies.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

One of the key components of this project includes an evaluation of the Lopez pipeline and the development of preferred alternative improvements. These alternatives will take into account life cycle costs and will balance increased capacity with increased energy costs and greenhouse emissions.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The following agencies have participated and will be key stakeholders in the completion of the Lopez Pipeline Improvements Project: San Luis Obispo County Flood Control District (District)_ San Luis Obispo County Flood Control District-Zone 3 Technical Advisory Committee (Zone 3 TAC)_ Oceano Community Services District_ City of Arroyo Grande_ City of Grover Beach_ City of Pismo Beach_ and County Service Area 12

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this project is not implemented, then the ability of the Zone 3 agencies to deliver surplus surface water will remain limited and require the continued pumping of water from the SMGB. This continued pumping, during periods of drought, will contribute to decreased groundwater levels and the potential for seawater intrusion in Southern San Luis Obispo County.

Other Comments:

The project cost estimate provided above is conservative. The cost ranges from $2,200,000 to $3,400,000.

Lopez Water Project Habitat Conservation Plan

South County

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control and Water Conservation District**

Contact Name: **Mark Hutchinson**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-5458**

Email: **mhutchinson@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The development of a Habitat Conservation Plan (HCP) for the Lopez Water Project will optimize Lopez Reservoir operations to balance municipal water supply, release of water for ecosystem preservation, and use by riparian land owners. Implementation of these elements of the Lopez HCP will improve flows for fisheries and other beneficial uses.

Describe Need for Project/Program (1 to 2 sentences):

It is the desire of the San Luis Obispo County Flood Control and Water Conservation District (District) to continue meeting its municipal water supply contracts. The need for the HCP is two-fold_ 1) acquire 'take permits' to authorize operation of the Lopez water project under the Federal Endangered Species Act and 2) The State Water Resources Control Board has directed the District to revise its water rights permit, a condition of which is to develop a HCP.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **2485 Lopez Drive, Arroyo Grande, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Industrial**

Watershed (if known) See Map: **Five cities Watershed**

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Ready for Implementation**

Describe status of permitting: **Pending submittal to federal resource agencies**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

EIR anticipated_ to begin in 12-24 months.

Estimated ProjectStart Date: **1/1/2018**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **project is currently funded via Zone 3 of the District**

What is the Percent Range of Matching Funds? **>51%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, completion and approval of the HCP is a condition of revising our water rights permit with the State Water Resources Control Board. Revising our water rights permit for Lopez reservoir allows for optimization of water storage for drought or emergency purposes as well as water supply management of our municipal contracts. The HCP takes into account existing downstream riparian rights most of which is used by large agricultural properties.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Indirectly through the revision of the water rights permit for Lopez reservoir, the ability to store additional water for drought purposes may be an outcome.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The HCP will identify a downstream release program that will benefit federally listed species such as Steelhead and California red-legged frogs through river_stream flow management.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring,

banking/recharge, etc.)?

N_A

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. The project will develop and implement water use collaberation among municipal, agriclutural, and environmental interests

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Indirectly the DAC of Oceano contracts with the District for a portion of their municipal water.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The development of the HCP is a collaborative process working with both National Marine Fisheries and State Fish and Wildlife

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The Disitrct is obligated to develop an HCP to support both a federal Incidental Take Permit and a revised State Water Rights permit. If the HCP is not completed, the Lopez Water Project will not be able to operate under federal or state law.

Other Comments:

Lopez Water Treatment Plant Membrane Rack Addition

South County

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control and Water Conservation District**

Contact Name: **Eric Laurie**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-788-2758**

Email: **elaurie@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Lopez Water Treatment Plant (WTP) Membrane Rack Addition Project involves the installation of additional membrane filter modules in the existing five membrane filtration racks and the construction of a new sixth membrane filtration rack. Addition of the membrane filtration modules and the membrane filtration rack will increase the WTP's filtration capacity enabling it to distribute more water to Zone 3 Agencies (five communities) and to provide greater reliability.

Describe Need for Project/Program (1 to 2 sentences):

The current membrane filtration capacity of the Lopez WTP is not sufficient to provide Zone 3 agencies with their peak demands with available surface water. Because of this capacity limitation, these agencies pump groundwater, even when they have excess surface water entitlements and allocations available to them. Groundwater demands increase risk of saltwater intrusion and decrease availability of groundwater. Groundwater quality is also not as good as treated Lopez water. This project would enable the Lopez WTP to provide enough treated water to meet peak demands, thus, reducing groundwater pumping and improving water quality.The existing five membrane filter racks at the Lopez WTP require frequent and routine cleaning and maintenance, requiring certain racks to go 'off-line' for cleaning. Some cleaining requires two racks to be 'off-line' at the same time. During these types of cleaning and maintenance procedures, the Lopez WTP cannot produce peak contractural water allocation demands. The addition of membrane filter modules to the existing rack and an additonal membrane filtration rack would allow cleaning and maintenance to occur while producing peak contractural water allocation demands.

Project Website (if any):

www.slocountywater.org

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **2485 Lopez Drive, Arroyo Grande, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Industrial**

Watershed (if known) See Map: **Five Cities Watershed**

Project Cost Range: **$500K-$1M**

Project Cost (if known): **$650,000**

Source of Cost Estimate: **Contractor**

Project Status: **Planning Phase**

Describe status of permitting: **N_A_ project was contemplated and accounted for in the initial construction design, permit and construction**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Categorically Exempt_ the project was contemplated and accounted for in the original environmental document. Anticipated by 6_30_2014.

Estimated ProjectStart Date: **7/1/2013**

Estimated ProjectEnd Date: **6/30/2015**

Identify proposed funding sources: **IRWM Grant Funding_ existing Flood Control Zone 3 Agency Billings**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Project increases treatment and delivery capacity for the primary drinking water supply to the Zone 3 agencies. The project water supply benefits include an increased capacity to treat and deliver Lopez water to Zone 3 agencies. This increase would result in a subsequent reduction of groundwater pumping and delivery of State Water. Additional water delivery through installation and expansion of the membrane rack and filters would help reduce saltwater intrusion and improve the overall health of the ground water basin.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Project increases the amount of high quality treated water to the Zone 3 agencies. The project water supply benefits include an increased capacity to treat and deliver Lopez water to Zone 3 agencies. Additional water delivery through installation and expansion of the membrane rack and filters would help reduce saltwater intrusion and improve the overall health of the ground water basin. The project also provides reliability, enabling the Lopez WTP membrane filtration racks to undergo maintenance while still delivering water allocations, which cannot currently be done during peak demand periods.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project also provides reliability, enabling the Lopez WTP membrane filtration racks to undergo maintenance while still delivering water allocations, which cannot currently be done during peak demand periods. This project will contribute to a sustainable and reliable water supply by providing flexibility in use of various water supply sources.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, delivery of Lopez water is of higher water quality than the groundwater that would be pumped if system was off-line.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project supports and integrates the land use planning elements of the Zone 3 communities by enhancing the reliability and capacity of treated water that is produced at the Lopez WTP, thus, enabling communities to manage their water sources with greater flexiblility. This will provide greater support of existing and planned land uses within the Zone 3 communities.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Implementation of the project reduces demands on groundwater by providing a larger quantity of surface water which also helps fight seawater intrusion.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Project improvements are located inside an existing building so no additional stormwater runoff will be generated.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

This project has several partners, namely the end users of Lopez water that make this a multi-benefit project. This project could be combined with projects from any of the Zone 3 agencies to increase the capacity of their individual water distribution systems via pipeline upsizing, installation of pump stations or pipeline pigging.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The Lopez WTP treats water for the Oceano community, which is classified as a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The Lopez WTP, where the membrane rack addition project is located, treats and provides water for the San Luis Obispo County's Flood Control Zone 3, which includes the Cities of Arroyo Grande, Grover Beach and Pismo Beach and the unincorporated areas of Oceano and CSA12 - Avila Beach. Lopez water is a primary water source for each of these communities and is part of their regional water supply program.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the treatement plant would continue to operate under existing conditions. The plant could possibly not be able to meet contractual water allocation demands during routine cleaning procedures that take two racks 'off-line' at the same time.

Other Comments:

This project will allow the communities to take more Lopez water and conserve other sources that may be affected by drought. Most of the communities relying on this water have State Water, Lopez water and groundwater in their water supply portfolio.

Los Osos Landfill Remediation - Pump and Treat

North Coast

Sponsoring Agency/Organization: **County of San Luis Obispo**

Contact Name: **Kari Graton**

Affiliation: **Project Manager**

Address: **1055 Monterey St, San Luis Obispo, CA 93407** Phone Number: **805-781-5239**

Email: **kmgraton@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

A conceptual design for an effective Pump and Treat system consists of strategically placed extraction wells, water storage tanks, a carbon filtration system, and a system of pipelines intended to collect and subsequently treat and dispose of the groundwater below and adjacent to the Los Osos landfill.

Describe Need for Project/Program (1 to 2 sentences):

The plume of contaminants from the Los Osos landfill extends beyond the 'point of compliance,' or the edge of the buried refuse. The current Corrective Action Work Plan based on intrinsic remediation has not resulted in reducing these contaminant levels down to the point of compliance. A study done in December 2011 concluded the most feasible way to accelerate this process was to develop and implement a Pump and Treat program.

Project Website (if any):

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **2285 Turri Road, San Luis Obispo CA 93405**

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map:

Project Cost Range: **$500K-$1M**

Project Cost (if known): **$901,000**

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **Coastal Development (CDP) in application phase - (application scheduled for completion in Nov. 2013)**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Coastal CEQA exemption for test phase

Estimated ProjectStart Date: **7/5/1905**

Estimated ProjectEnd Date: **7/8/1905**

Identify proposed funding sources: **County of San Luis Obispo**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **San Luis Obispo**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. This Pump and Treat Project will improve existing water quality and remove VOCs from the groundwater below and adjacent to the Los Osos landfill, in order to meet regulations and compliances.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. This project will improve water quality of the groundwater on-site, beyond the point of compliance, to meet drinking water standards.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. This project will provide groundwater remediation by managing a minor contaminant plume out of compliance with standards mandated by the Central Coast Regional Water Quality Control Board.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The County of San Luis Obispo has and will continue to work with the Regional Water Quality Control Board (RWQCB), the San Luis Obispo County Air Pollution Control District (SLO APCD) and the California Department of Resources and Recycling in these efforts to leave the landfill in a condition that would pass all state and county health laws, rules and regulations, concerning waste disposal sites.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

At a meeting in December of 2012, RWQCB staff advised County staff to move forward as soon as possible in constructing and initiating operations of a groundwater pump and treat facility at the landfill, or face enforcement action. In subsequent correspondence with County staff, RWQCB staff has noted that violations of the landfill Waste Discharge Requirements (WDR's) subjects the County to civil liability of up to $5,000 for each day the violation occurs per California Water Code section 13350(a)(2) and (e), which is attached (Exhibit "I").

Other Comments:

The project cost estimate breakdown is as follows:Capital: $631,000Annual O&M for first 3 years: $75,000 - $105,000_yr ($90,000 avg * 3 = $270,000)

Los Padres CCC Center - Stormwater LID Treatment Project

North Coast

Sponsoring Agency/Organization: **Morro Bay National Estuary Program**

Contact Name: **Adrienne Harris**

Affiliation: **Director - Morro Bay National Estuary Program**

Address: **601 Embarcadero, Morro Bay, CA 93442** Phone Number: **(805) 772-3834**

Email: **aharris@mbnep.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project will be implemented over a 20 acre site that is located directly adjacent to Chorro Creek, the primary tributary to the Morro Bay Estuary that includes a robust steelhead population. The project will use LID methods to treat and inflitrate runoff from the imperivious and compacted surfaces by constructing on- contour and off-contour infiltration basins, rain gardens, native plantings, greywater systems, and mulch within the California Conservation Corps Center facility in San Luis Obispo County. The project will greatly reduce the transport of pollutants from the site into Chorro Creek and the Estuary, but will also help reduce hydro-modification impacts to Chorro Creek caused by the quick discharge of storm flows into the creek. The project could be broken down into a phased approach that would be linked together and customized to fit funding resources.

Describe Need for Project/Program (1 to 2 sentences):

The project site is located on a portion of Camp San Luis Obispo National Guard Base, which is an intensely developed area along the banks of Chorro Creek. Currently storm flows and associated pollutants from this 'urban' area are discharged directly and quickly to Chorro Creek where additional hydro-modifications impacts to the creek are evident. These impacts include high levels of nutrients, bacteria, pertoleum products, metals, and sediment that disrupt the habitat and life stages of steelhead in the stream, as well as aquatic and terrestrial organisms in the Morro Bay Estuary. In addition, this project will act as a pilot LID project that could be scaled up to include the entire Camp SLO National Guard Base in the future. This project will also be used as a demonstration project for the public due to the location, accessibility and the nature of the work.

Project Website (if any):

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **North Coast**

Nearest Cross Street or Street Address: **Madera Ln and O'Connor Way, San Luis Obispo**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture, Urban, Open Space**

Watershed (if known) See Map: **Chorro Creek - Morro Bay**

Project Cost Range: **$500K-$1M**

Project Cost (if known):

Source of Cost Estimate: **Contractor**

Project Status: **Design Phase**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **6/1/2014**

Estimated ProjectEnd Date: **12/31/2016**

Identify proposed funding sources: **CCC, National Guard, NOAA, MBNEP, Private Foundations or other Non-Profits**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the project conserve and infiltrate stormwater on site, recharge groundwater and improve baseflow conditions in Chorro Creek.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes since the project will treat and infiltrate stormwater on site this will improve quality and quantity of water for groundwater recharge and base flow in Chorro Creek.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes the project is using LID methods which will improve water quality and uses stormwater as an irrigation source for nearby plants, as well as recharging GW for other beneficial uses.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes the project will reduce pollutants and associated hydro-modification impacts to aquatic and terrestrial species in Chorro Creek and the Morro Bay Estuary. In addition the project provides an excellent opportunity to improve environmental education resources to CCC corpmembers. The CCC Los Padres

Center is a residential facility that houses up to 80 corpsmembers. Implementing projects on this property will help develop the necessary conservation and environmental awareness among the corpsmembers that will help encourage different behaviors, lifestyle changes, and attitudes into their way-of-life. The project location also provides the opportunity to expand this environmental education into the National Guard members if it's scaled up to include the entire Camp SLO Base.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes the project will increase recharge of GW using LID methods.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes the project will improve Flood management by implementing LID metods on 20 acres near Chorro Creek. This will help improve water quality to the Creek, but also reduce current hydro-modification impacts to the creek.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes the project will directly educate CCC corpmembers, but will also act as a demonstration project for Camp SLO National Guard Base, nearby Cuesta Community College, and other interested entities.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

None

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project is a partnership between the National Guard, the Morro Bay National Estuary Program and the California Conservation Corps

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Continued water quality and hydro-modification impacts to Chorro Creek, steelhead habitat, and Morro Bay National Estuary Habitats.

Other Comments:

Mapping the saltwater_freshwater interface in southern San Luis Obispo and northern Santa Barbara County, California

South County

Sponsoring Agency/Organization:

Contact Name: **Jill Densmore**

Affiliation: **USGS**

Address: **3130 Skyway Blvd, Ste 602, Santa Maria, CA and 6000 J St, Sacramento, CA**

Phone Number: **805-878-6201**

Email: **jidensmore@usgs.gov**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Map the saltwater_freshwater interface to 1) delineate where and at what depths saltwater is encounterd, 2) determine if current monitoring is adequate, 3) help identify best locations for additional monitoring wells, as needed, and 4) provide data for the Santa Maria Basin characterization study and groundwater-flow model.

Describe Need for Project/Program (1 to 2 sentences):

Previous studies have not delineated the extent of saltwater intrusion and have only approximated the distance and depth at which saltwater intrusion may be occurring. Because water levels in key wells in the Nipomo Mesa and Oceano areas have declined to 1975 levels and are below sea level in some areas, local groundwater resources are vulnerable to saltwater instrusion and protection_mitigation needs to be identified.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **approximately West side of Highway 1 from Pismo Beach to Guadalupe**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **urban, agricultural, rural residential, recreational**

Watershed (if known) See Map: **Five Cities, Nipomo Mesa, and Santa Maria Valley**

Project Cost Range: **$250K-$500K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

na

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project will aid in the management and sustainability of groundwater resources by delineating the location and depth of the saltwater_freshwater interface. Knowing the location and depth of this interface will help to target a focused application of resources and monitoring activities. Data provided by this project will help County personnel determine if management goals are being met and test water-management strategies where groundwater-flow models exist.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

na

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

This project will aid in the prevention of saltwater intrusion by mapping the location of the saltwater_freshwater interface. Repeat surveys can be conducted to help monitor vulnerable areas where monitoring wells are not located.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

This project will aid in expanding resource stewardship between the water users in the South County by identifying vulnerable areas.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will improve groundwater management by 1) providing a better understanding of the groundwater basin and 2) helping to determine if current groundwater-management practices are effective or if they are in need of a more proactive approach.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

na

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project will help improve water-resources management and outreach by identifying the location of areas most vulnerable to saltwater intrusion. It is hoped that this project may encourage an environment of cooperation between the water users that share this limited resource.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The project area includes Oceano, a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

na

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

Because the proposed study area covers the coastline of South County (Southern San Luis Obispo County) and the Santa Maria Valley (Northern Santa Barbara County), it would be beneficial to have partnerships with both counties.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Currently, water levels in key wells in the Nipomo Mesa and Oceano areas have declined to 1975 levels and are below sea level in some areas as a result of declining recharge from precipitation and continued groundwater pumping. Previous studies have not delineated the extent of saltwater intrusion and have only approximated the distance and depth at which saltwater intrusion may be occurring. Currently, only 7 sites along the coast are being monitored for saltwater intrusion to the groundwater resources the coastal communities of Pismo Beach, Grover Beach, Oceano, Arroyo Grande, Nipomo, and Guadalupe. To assess the vulnerability to the water supply of these communities, the location and depth of the saltwater_freshwater interface needs to be mapped to provide water use decision-makers with the science-based data needed to protect this valuable resource. The data from this study are needed for the characterization and groundwater-flow model of the Santa Maria Basin. Without this data, water-resource management of this basin by the basin characterization and groundwater-flow model will be ineffective in evaluting and

ultimately protecting the water supply.

Other Comments:

Meadow Creek Flood Reduction

South County

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **G.W. Bates**

Affiliation: **Coastal San Luis Resource Conservation District**

Address: **645 Main Street, Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **gbates@coastalRCD.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project is intended to reduce flooding in Meadow Creek between Pismo Beach and Oceano by increasing outlet capacity at Carpenter Creek. The project will include the following components:

1. **Alternatives study and feasibility analysis including cost estimate and permit requirements.**
2. **Preliminary design for outlet expansion.**
3. **Permit acquisition.**
4. **Final design.**
5. **Construction.**

Describe Need for Project/Program (1 to 2 sentences):

Meadow Creek is subject to frequent flooding in the area between Pismo Beach and Oceano. This flooding impacts residents and businesses as well as facilities controlled by California Department of Parks and Recreation, Caltrans, the County of San Luis Obispo, and Grover Beach. Increasing the outlet capacity at Carpenter Creek is widely recognized as viable option for flood reduction because it provides the opportunity for runoff originating in the upper watershed to discharge to the Pacific Ocean before entering the flood prone area.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **Meadow Creek**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA_NEPA has not been started.

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. Expanding the Carpenter Creek outlet provides the opportunity to restore Carpenter Creek habitat.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring,

banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. The primary goal of this project is flood reduction.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. This project is intended to reduce flooding in Oceano.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Climate changes is expected to increase the frequency and severity of flooding in this area. Sea level rise is expected to impact the affected coastal communities and exacerbate flooding. Increasing outlet capacity will help these communities adapt to climate change and reduce the flood related impacts.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

This project will involve partnerships with Pismo Beach, California Department of Parks and Recreation, Caltrans, the County of San Luis Obispo, and Grover Beach.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Flooding in these areas will continue and possibly increase with climate change.

Other Comments:

Meadow Creek Restoration Plan

South County

Sponsoring Agency/Organization: **Central Coast Salmon Enhancement (and Coastal San Luis RCD)**

Contact Name: **Steph Wald**

Affiliation:

Address: **229 Stanley Ave., Arroyo Grande, CA 93420** Phone Number: **805-471-3789**

Email: **steph@centralcoastsalmon.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Work with agencies and landowners to develop a water quality, habitat and flood protection plan for the Meadow Creek Watershed.

Describe Need for Project/Program (1 to 2 sentences):

A holistic planning process is needed to evaluate flood attenuation potential that also enhances habitat and protects water quality in the coastal strip of geography between the downstream reaches of the Pismo Creek and Arroyo Grande Creek watersheds.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **highway 1 including areas between Pier Avenue_Grande Avenue beach access points and areas upslope into city of Arroyo Grande**

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map: **Meadow Creek**

Project Cost Range: **$250K-$500K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project will study stormwater management needs for the Meadow Creek watershed.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project would involve stakeholder residents and potentially responsible agencies in a facilitated dialog to integrate watershed assessment results with community needs to furnish recommendations for watershed health, community health and safety, and ecosystem values. It would expand environmental and resource stewardship, and include ecosystem restoration, public education and stream flow management.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The project would involve watershed management and flood control assessment.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project would include public outreach and education.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The project would involve residents of Oceano within the Meadow Creek watershed

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

State Parks, Coastal San Luis RCD, County of San Luis Obispo Public Works would be potential partners

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The Meadow Creek watershed would continue to receive piece-meal solutions to flood protection and habitat enhancement.

Other Comments:

Mid-Higuera Bypass

South County

Sponsoring Agency/Organization: **City of San Luis Obispo**

Contact Name: **Barbara Lynch**

Affiliation: **City of San Luis Obispo**

Address: **919 Palm Street** Phone Number: **805-781-7191**

Email: **blynch@slocity.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project will construct bypass channels for high flood flows for a portion of San Luis Obispo Creek paralleling the mid-Higuera area in the City of San Luis Obispo.

Describe Need for Project/Program (1 to 2 sentences):

The project has shown to be beneficial in hydraulic studies by reducing the frequency of channel overtopping, which floods nearby areas.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **South Coast Sub-region _ City of San Luis Obispo**

Nearest Cross Street or Street Address: **Higuera and Marsh**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **San Luis Obispo _ Avila**

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$3,000,000**

Source of Cost Estimate: **Engineer**

Project Status: **Design Phase**

Describe status of permitting: **Applications are awaiting completion of CEQA document. Permitting estimated to be completed in September 2016**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Technical studies complete, preliminary design underway to allow final CEQA document to be prepared. CEQA

estimated to be completed in July 2015.

Estimated ProjectStart Date: **6/1/2017**

Estimated ProjectEnd Date: **11/15/2017**

Identify proposed funding sources: **City, Zone 9 District, Grant**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **San Luis Obispo**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. Project reduces frequency of flow across land and streetscapes with pollutants that are then introduced into the system.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The project will set aside areas for future bikepath construction, allowing educational opportunities. The bypass channels will provide additional area for recharge, and construction will include establishment of native riparian habitat.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. Project will reduce flood frequencies and include stream and floodplain restoration.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. Project is on publicly owned lands, managed by the City's Natural Resources staff and will provide opportunities for public education and outreach.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Portions of property along this area of the channel are considered lower income areas in the City.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project is being undertaken by Zone 9 Flood Control and Water Conservation District. The City of San Luis Obispo is providing project management, and the County of San Luis Obispo is completing environmental review and permitting activities.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Flooding will continue in this area at low storm eventts.

Other Comments:

The project was studied and identified in the Watershed Management Plan commissioned by Zone 9, adopted by the City of San Luis Obispo, and approved by the County of San Luis Obispo. The project was adopted as a City Council goal, and is currently funded for environmental permitting and design by Zone 9. Grant funding is needed for construction only.

Morro Bay_Cayucos Sanitation District Salt and Nutrient Management Plan

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **City of Morro Bay**

Contact Name: **Rick Sauerwein**

Affiliation: **City of Morro Bay Capital Projects Manager**

Address: **955 Shasta Road** Phone Number: **772-6266**

Email: **rsauerwein@morro-bay.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This study will provide an analysis of existing influent conditions, develop projections of future requirements, identify best management practices and develop recommendations to implement control and treatment strategies for influent waste streams.

Describe Need for Project/Program (1 to 2 sentences):

The City of Morro Bay and the Cayucos Sanitation District through an established Joint Powers Authority (JPA) have been working cooperatively for the past seven years on a project to upgrade the existing waste water treatment plant. In January 2013 the California Coastal Commission denied the permit to upgrade at the existing site and directed the relocation of the plant and a significant increase of the reclaimed water reuse component. The ability to significantly increase reclaimed water reuse and achieve new salt and nutrient loading standards will require a careful analysis of existing conditions and recommendations to implement best management practices to control and treat influent waste streams.

Project Website (if any):

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **North Coast and North County**

Nearest Cross Street or Street Address: **160 Atascadero Rd**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban Light Industrial**

Watershed (if known) See Map: **WPA3 and WPA4**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Ready for Implementation**

Describe status of permitting: **NPDES Application due Sept 2013**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

None required- Study only

Estimated ProjectStart Date: **1/15/2014**

Estimated ProjectEnd Date: **6/15/2014**

Identify proposed funding sources: **Prop 84**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, by reducing salt & nutrient levels in effluent more beneficial uses will be available for reclaimed water. Agricultural irrigation is a prime example.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, by increasing beneficial ag uses for reclaimed water, GW withdrawals will be reduced for irrigation uses and existing appropriated municipal water rights will be preserved.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, preservation of existing GW supplies through reduced salt and nutrient loading will enhance the diversity of regional water supply options and improve the ability of local agencies to respond to future drought conditions.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, the study will identify existing and potential sources recommend best management practices, as well as control and treatment strategies

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes, by increasing beneficial ag uses for reclaimed water, GW withdrawals will be reduced and perennial

creek flows will increase, thereby improving aquatic habitat.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, by increasing beneficial ag uses for reclaimed water, GW withdrawals will be reduced for irrigation uses and appropriated municipal water rights will be preserved.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, surveys of commercial, agricultural and municipal users will raise awareness of the importance to everyone of water conservation and reuse.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes, CCC direction to relocate the WWTP and increase water reuse is driven by climate change predictions of sea level rise and coastal wave run-up.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

This study will utilize the methodology developed for the North County S&N study

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Until the project is implemented, salt loadings at the WWTP will continue unabated. This means that salt levels in treated effluent will continue at their present levels which are too high for most agricultural reuses. Nutrient levels in existing groundwater wells will continue to impact the City's ability to use these wells as part of the City's water supply portfolio.

Other Comments:

Nacimiento Water Project Energy Recovery Turbine

South County

Sponsoring Agency/Organization: **City of San Luis Obispo**

Contact Name: **Wade Horton**

Affiliation: **City of San Luis Obispo**

Address: **879 Morro Street, San Luis Obispo, CA 93401** Phone Number: **(805) 781-7237**

Email: **WHorton@slocity.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Raw water from the Nacimiento Water Project is delivered to the City's water treatment plant on Stenner Creek Road, and there is significant potential energy in the water that is currently being controlled by head-breaking sleeve valves. A hydroelectric energy recovery turnbine could be used instead of the sleeve valves, and generate clean green hydroelectric power to help partially offset the electrical usage at the City's water treatment plant.

Describe Need for Project/Program (1 to 2 sentences):

A final detailed design study is needed to confirm the feasibility of the project, and if judged feasible, then environmental permitting, FERC permitting for a conduit-exempt project, and design and construction of the project would be needed.

Project Website (if any):

none

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Stenner Creek Road and CA Highway 1**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **San Luis Obispo_Avila**

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$1,895,000**

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **None**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

none

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **10/31/2015**

Identify proposed funding sources: **Debt financing, grants, equity investing**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Luis Obispo**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes - the hydroelectric energy recovery turbine_generator would be installed at the existing water treatment plant near the forebay to the plant.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, it will generate clean energy that can be used on-site in the treatment of water for the population of San Luis Obispo.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes, it will generate clean energy that can be used on-site in the treatment of water for the population of San Luis Obispo. Greenhouse gas emissions will be reduced by this project. No streams will be diverted for this installation because the water is coming from the existing Nacimiento Water Pipe.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood

control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes - the project will be a good demonstration project for other water utilities to realize how the can convert water power inside their pipelines into clean hydroelectric generation.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes - SLO is a DAC, and the power produced from the energy recovery turbine will offset PG&E power purchased to operate the City's Water Treatment Plant, therefore the operation cost of the water treatment plant will be reduced, thus saving the citizens of SLO money.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes - it will reduce greenhouse gas emissions. The quantity of reduction has not yet been computed.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The City of San Luis Obispo, PG&E, and the San Luis Obispo County Flood Control and Water Conservation District will be engaged in the project.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Wasted energy within the existing pipeline will be lost. Electrical operating cost savings will be lost to a DAC. Greenhouse gas reduction will not be realized.

Other Comments:

The provided project cost estimate is provided in 2015 dollars.

Nature Center & Conservation Hub

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Address: **65 South Main Street, Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The North County Conservation Center is an organization with a visitor center, classrooms and demonstration grounds. The purpose of this center is to bridge the gap in local awareness about proper resource management, youth conservation education and farmer education.

Describe Need for Project/Program (1 to 2 sentences):

A North County SLO Nature Center provides a hub for conservation education and land for conservation farming demonstration projects. It will promote conservation, research and an appreciation for nature, watersheds and the environment. There is currently no such resource for community members to help with growing resource challenges and shortages.

Project Website (if any):

Subregion (See Map) **Regional** **(2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **Located in North County, but will be accessible to all in the region**

Nearest Cross Street or Street Address: **El Pomar**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Rural residents & agriculture**

Watershed (if known) See Map: **Salinas River**

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting: **TBD**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **3/1/2015**

Estimated ProjectEnd Date: **3/31/2018**

Identify proposed funding sources: **Local, corporate, grants**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **San Simeon**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This project will give citizens a place to go for to view, learn and install on-the-ground conservation projects.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. There are plans to implement organic farming demonstration projects along the Salinas River to demonstrate water quality implementation from planning to final execution.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. Implementation demonstration projects will model effective methods of water conservation installments and contribute to water quality.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. This project expands community-wide awareness of local watershed function, biospheric function and practice of new behaviors using these examples.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. This project will educate the community about groundwater basins and functionality.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. Low impact development demonstration projects will be available for the community to install them.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. This will be a high-traffic conservation education center with ongoing outreach clinics.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Located within 10 minutes of San Miguel, this project will reach out to this disadvantaged community with special programs.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Energy efficient demonstrations will be on display.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Multiple local organizations share the vision for a North County_Salinas River Nature Center and will partner with the US-LTRCD on establishing it.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

North County community members will continue to lack an understanding of best management practices and watershed_foodshed functionality and ecosystem health needs.

Other Comments:

Potential project partners include: ecologists, North County Watch, Templeton Area Advisory Group (TAAG), NRCS, One Cool Earth, and Farm Bureau.

NCMA_NMMA Salt and Nutrient Management Plan (SNMP)

South County

Sponsoring Agency/Organization: **City of Arroyo Grande**

Contact Name: **Teresa McClish**

Affiliation: **City of Arroyo Grande**

Address: **City of Arroyo Grande, 300 E. Branch Street, Arroyo Grande, CA 93420**

Phone Number: **(805) 473-5420**

Email: **tmcclish@arroyogrande.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The purpose of this project is to develop a Salt and Nutrient Management Plan (SNMP) for the portions of the Santa Maria Groundwater Basin (Basin) underlying the Northern Cities Management Area (NCMA) and the Nipomo Mesa Management Area (NMMA) (referred hereafter as the 'Project'). The SNMP will include: basin characterization_ identification of current and future salt and nutrient loading sources_ quantification of these sources_ development of implementation measure, goals and objectives_ creation of a monitoring plan_ and the preparation of a summary report.

Describe Need for Project/Program (1 to 2 sentences):

The Project will build upon prior and ongoing efforts to address groundwater management issues in the Basin to ensure the long-term sustainability of the Basin and meet the regulatory requirements of the State Water Resources Control Board's Recycled Water Policy. The Project will provide supplemental groundwater condition and management data to aid in the development of a groundwater flow model for the Basin.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **300 E. Branch Street, Arroyo Grande, CA 93420**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Multiple**

Watershed (if known) See Map: **Five Cities_Nipomo Mesa**

Project Cost Range: **$250K-$500K**

Project Cost (if known): **$250,000**

Source of Cost Estimate: **Other**

Project Status: **Planning Phase**

Describe status of permitting: **NA**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

The completed SNMP will become an amendment to the CCRWQCB's Basin Plan. Basin Plan amendments are a Certified State Regulatory Program making them exempt from the CEQA process.

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **11/30/2015**

Identify proposed funding sources: **None**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

An improved understanding of the hydrogeology and salt and nutrient movement will help develop a framework for permitting and implementing groundwater storage projects, developing recycled water projects, and improving stormwater management while preventing water supply and conservation projects from detrimentally impacting the water quality and reliability in the basin.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

This Project will help maintain the long-term sustainability of the Basin, protect beneficial uses, and integrate related collaborative efforts by:
1. Providing a structure for monitoring water quality throughout the Basin_
2. Developing implementation measures, goals and objectives designed to manage salt and nutrient loading_
3. Meeting the requirements of the State Water Board's Recycled Water Policy_
4. Supporting the DWR's CASGEM monitoring program_
5. Supporting the State Water Board's GAMA monitoring program_
6. Augmenting Court ordered monitoring and management reporting_
7. Developing a conceptual model for the Basin that can be utilized to better evaluate water resource management alternatives_
8. Identifying basin management objectives consistent with the CCRWQCB's Water Quality Objectives and Monitoring and Assessment Objectives, as well as the management objectives defined by the Judgment and subsequent annual reports for each of the Management Areas_ and
9. Evaluating potential for conjunctive use opportunities or conceptual recharge projects and their effectiveness.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The SNMP would become part of the CCRWQCB's Basin Plan, which will continue to use the SNMP as a resource for regulating salt and nutrient loading within the Basin. The updated Basin Plan would also provide a regulatory framework for permitting recycled water projects. The SNMP and data collected to create the SNMP could eventually feed into a Basin groundwater flow model that will aid the stakeholders in managing and operating their groundwater resources. The development a groundwater flow model could help to identify potential recharge areas within the Basin. These recharge areas could be utilized for conjunctive use programs or developing seawater intrusion barriers.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The SNMP would become part of the CCRWQCB's Basin Plan, which will continue to use the SNMP as a resource for regulating salt and nutrient loading within the Basin. The SNMP and updated Basin Plan would provide a valuable resource for monitoring and improving water quality.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The SNMP must evaluate environmental impacts_ comply with noticing requirements_ and if significant adverse impacts exist then adopt feasible alternatives or mitigation measures to reduce impacts. The CCRWQCB would be required to evaluate the environmental consequences through its own process. The development a groundwater flow model could help to identify potential recharge areas within the Basin. These recharge areas could be utilized for conjunctive use programs or developing seawater intrusion barriers.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

This Project will help maintain the long-term sustainability of the Basin, protect beneficial uses, and integrate related collaborative efforts by:
1. Providing a structure for monitoring water quality throughout the Basin_
2. Developing implementation measures, goals and objectives designed to manage salt and nutrient loading_
3. Meeting the requirements of the State Water Board's Recycled Water Policy_
4. Supporting the DWR's CASGEM monitoring program_
5. Supporting the State Water Board's GAMA monitoring program_
6. Augmenting Court ordered monitoring and management reporting_
7. Developing a conceptual model for the Basin that can be utilized to better evaluate water resource management alternatives_
8. Identifying basin management objectives consistent with the CCRWQCB's Water Quality Objectives and Monitoring and Assessment Objectives, as well as the management objectives defined by the Judgment and subsequent annual reports for each of the Management Areas_ and
9. Evaluating potential for conjunctive use opportunities or conceptual recharge projects and their effectiveness.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood

control projects, system operations, stream/floodplain restoration, etc.)?

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project stakeholders include water agencies, wastewater agencies, agricultural interests, recycled water producers, private well owners, environmental groups, regulatory agencies and the general public. The development of the Project is required to be a stakeholder driven process and will involve collaborative efforts between all of the stakeholders. The Project would engage regional planning efforts to develop regional water reliability and quality projects for the South County Sub-Region and would facilitate data sharing between the NCMA and NMMA Technical Groups.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The NCMA and NMMA boundaries overlay the community of Oceano. The SMGB is one of the key water supply sources for the agencies within the NCMA and NMMA. Improved characterization of the groundwater basin will benefit the overlying DAC by providing the management areas technical groups with data to make more informed decisions related to improving water supply reliability, protecting water quality, and safeguarding this essential water supply resource.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project stakeholders include water agencies, wastewater agencies, agricultural interests, recycled water producers, private well owners, environmental groups, regulatory agencies and the general public. The development of the Project is required to be a stakeholder driven process and will involve collaborative efforts between all of the stakeholders. Furthermore, the Project would include an effort to work with the agencies within the portion of the groundwater basin underlying Santa Barbara County, which is within its own IRWM region.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the SNMP is not developed, salt and nutrient pollution may impact the beneficial uses of the portions of Basin within the NCMA and NMMA. Addtionally, the South County Sub-Region stakeholders may not be in compliance with the State Water Resources Control Board's Recycled Water Policy.

Other Comments:

North Coast Watershed Plans

North Coast

Sponsoring Agency/Organization: **US-LT RCD**

Contact Name: **Laura Edwards**

Affiliation: **US-LT RCD**

Address: **65 S. Main Street Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Develop watershed management plans for watersheds in the North Coast region where water supplies are stressed.

Describe Need for Project/Program (1 to 2 sentences):

Water supplies and watershed health are diminishing in the North Coast region of the County due to increased draw by increasing populations and increased climate change impacts. Developing management plans for various stressed watersheds within the North Coast region will provide implementation strategies to return watersheds to a healthy state, increasing water availibility,reversing climate change impacts and addressing any water quality issues flows released into the Monterey Bay National Marine Sanctuary.

Project Website (if any):

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map: **Big Creek, San Simeon, Cambria, Cayucos**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Ready for Implementation**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **San Simeon**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The proposed watershed management plan(s) will provide concrete targeted recommendations to increase groundwater recharge, provide stormwater management strategies, provide locations for efficient and effective infiltration, and address water use efficiency for area land uses.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The proposed watershed management plan(s) will provide recommendations specific to the region related to access to water rights and existing water supplies, water supply management, water quality, and sustainability of Ag, rural, and urban water supplies.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Watershed plan(s) will identify implementation strategies for improving water quality including improving groundwater conditions and providing recommendations to reduce pollutant loads, including those flowing into the waters of the Monterey Bay National Marine Sanctuary.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project will expand environmental stewardship and provde recommendations to ensure that each watershed ecosystem is restored. The plan would identify key infiltration zones for targeted protection strategies and provide direction for land use management of existing Agricultural, rural, and urban land uses. In addition, the plan would provide details for in stream flow management, invasive species reduction and increasing habitat conditions for steelhead trout survival and migration.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats

of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will provide a more detailed analysis of the existing groundwater basins and key alluvial water supply areas and provide basin and water supply management strategies.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The proposed plan(s) will provide specific tageted areas for LID implementation, watershed and flood management, and stream restoration.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The watershed plan(s) will have a public outreach and an education component in addition to providing recommendations for collaborative programs between agricultural and urban landowners.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

San Simeon is located within the North Coast area and would benefit from the development of an area wide watershed plan.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

The proposed plan will address impacts related to climate change throughout the watersheds of the North Coast and provide recommendations for reversing climate change impacts, including strategies for decreasing water temperature, increasing riparian vegetation, and increasing carbon sequestering.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Big Creek watershed is located in San Luis Obispo County and Monterey County. The US-LT RCD would coordinate efforts for this watershed with Monterey County. In addition, the RCD will coordinate efforts with the County and Community Service districts within the North Coast Area.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Lack of knowledge about local watersheds results in management efforts that do not fully maximize conservation and restoration efforts.

Other Comments:

North County Fertilizer Regions_ Precision Agriculture

North County

Sponsoring Agency/Organization: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Address: **65 South Main Street, Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Provide a Brief Project/Program Description (1 to 2 sentences):

Develop fertilizer blends customized to North County growing conditions. Identify fertilizer recommendation zones for the various climates in North County.

Describe Need for Project/Program (1 to 2 sentences):

Precision agriculture can help reduce nutrient applications by growers. Traditional practices often apply more than is necessary resulting in nutrient contamination of surface and groundwaters by leaching and in runoff. By researching soils and climatic factors, recommendations and fertilizer blends can be developed, and growers can be educated about how be manage their nutrient appliations

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **North County at large**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture**

Watershed (if known) See Map: **Multiple - Paso Robles Groundwater Basin**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Design Phase**

Describe status of permitting: **Permits not required**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA exempt

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **1/31/2016**

Identify proposed funding sources: **Grants, local municipality, Community Services Districts**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, Groundwater storage and water use efficiency due to soil building

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, improve existing water quality, sustainability of supplies for agricultural, rural and urban uses.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. Drought preparedness & education.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to surface or groundwater

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. Expand environmental and resouce stewardship, ecosystem restoration, public education, land use management.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. Public awareness, education and behavior change.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. Public awareness, education and behavior change.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education,

collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. Public awareness, education and behavior change.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Critical water quality or quantity, contamination of surface and groundwaters, public awareness, education and behavior change in disadvantaged communities.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Adding vegetation will be a recommended behavior change, reduce greenhouse gas emission due to decreased nitrogen fertilizer usage

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Awareness levels of fertilizer overapplications will remain low. Risk of watershed pollution remains the same or increases as agriculture lands increase.

Other Comments:

North County Precision Irrigation Research Program_ Precision Agriculture

North County

Sponsoring Agency/Organization: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Address: **65 South Main Street, Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Provide a Brief Project/Program Description (1 to 2 sentences):

Research methods of precision irrigation to reduce water usage. Educate users on these methods and provide demonstrations, workshops and incentives for them to use these modern practices.

Describe Need for Project/Program (1 to 2 sentences):

Precision agriculture can help reduce water usage by irrigation users. Traditional practices are based on seasonal patterns and custom instead of quantitative data. By using weather data and having a clear understanding of the relationship between soil fertility and water holding capacity, growers can schedule their irrigations towards wiser water use.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **North County at large**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture**

Watershed (if known) See Map: **Multiple - Paso Robles Groundwater Basin**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Design Phase**

Describe status of permitting: **Permits not required**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA exempt

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **1/31/2016**

Identify proposed funding sources: **Grants, local municipality, Community Services Districts**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, Groundwater storage and water use efficiency

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, improve water supply management, existing water quality, sustainability of supplies for agricultural, rural and urban uses.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. Drought preparedness & education.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to surface or groundwater

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. Expand environmental and resouce stewardship, public education, land use management.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. Understanding of groundwater basin and threat of overbraft, banking_recharge, public awareness, education and behavior change.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. Public awareness, education and behavior change.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Critical water quality or quantity, public awareness, education and behavior change in disadvantaged communities.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Energy efficient approach, reduce greenhouse gas emission due to decreased nitrogen fertilizer usage.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Continued stress on Paso Robles Groundwater Basin due to overapplication of irrigation water. Continued use of traditional practice instead of science based precision agricultural practices.

Other Comments:

North County Strategic Plan

North County

Sponsoring Agency/Organization: **Institute for Advanced Technology & Public Policy, Cal Poly, San Luis Obispo**

Contact Name: **Christine Robertson**

Affiliation: **Associate Director**

Address: **1 Grand Avenue, San Luis Obispo, CA 93407** Phone Number: **(805) 756-1694**

Email: **crober22@calpoly.edu**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Assemble a multidisciplinary team with expertise in hydrology, resource management, wildlife conservation, ecosystem restoration, GIS mapping and land use to perform an integrated analysis of the Salinas River corridor within the Paso Robles Groundwater Basin boundaries and develop a strategic plan to improve the natural recharge of the groundwater Basin while also improving the ecological health of the river system. Project components include: 1. Compile existing data and studies regarding the historic condition of the Salinas River, including water flows, steelhead counts, and system ecology to establish a baseline of historic conditions that can inform a river restoration strategic plan_ 2. Study the hydrology of the river system within the boundaries of the Basin to identify key recharge sites and assess the extent to which increased flow could benefit both groundwater basin recharge and the river ecosystem (including steelhead populations, intact riparian corridors, and improved wildlife habitat). 3. Conduct GIS mapping of the Salinas River corridor and watersheds within the Basin to identify key land conservation opportunities that could improve river flow, increase Basin recharge, and protect critical habitat. This study will concentrate first on the Salinas River but will later apply similar analyses to other fluvial systems involved in the recharge of the basin.

Describe Need for Project/Program (1 to 2 sentences):

The Paso Robles Groundwater Basin is in decline at the same time that the Salinas River has been designated an 'impaired water body' by the CA State Water Resources Control Board and a 'priority watershed' by the Central Coast Regional Water Quality Control Board. Conservation, restoration and recharge strategies along the Salinas River should have the mutually reinforcing benefits of improving the sustainability of the groundwater Basin, riparian and wildlife corridors along the Templeton and Paso Robles Watersheds, and Salinas River ecosystem.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agricultural and rural residential properties along the Salinas River**

Watershed (if known) See Map: **Templeton and Paso Robles**

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$3,000,000**

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **N_A**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

N_A

Estimated ProjectStart Date: **7/6/1905**

Estimated ProjectEnd Date: **7/8/1905**

Identify proposed funding sources: **IRWM, in-kind contributions and grant funding.**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Enhanced recharge assists with stormwater management and groundwater storage.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Study the hydrology of the river system within the boundaries of the Basin to identify key recharge sites and assess the extent to which increased river flow could improve the sustainability of the groundwater basin

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Improving river flow and recharge will improve the sustainability and reliablity of the groundwater supply.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Enhanced conservation, restoration and recharge strategies along the Salinas River will directly benefit agricultural water users dependent upon a sustainabile groundwater basin.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Identifcation of priority sites for ecosystem restoration that restore critical habitats for steelhead through increased river flow, conserve critical riparian corridors and enhance groundwater recharge.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Through hydrologic analysis and GIS mapping, this project seeks to directly address the overdraft of the Paso Robles Groundwater Basin and provide practical basin recharge and management strategies.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

GIS mapping of the watershed and key recharge zones, combined with restoration and conservation strategies will improve flood management

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

With the Salinas River corridor as the project focus, project participants would collaborate with adjacent agricultural and rural property owners, as well as environmental and agricultural organizations.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The Institute will collaborate with San Luis Obispo County, the Regional Water Quality Control Board, and local nonprofit organizations such as Ecologistics to compile historic data and relevant studies to inform the strategic plan described above.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Efforts to restore the Salinas River and efforts to address the overdraft of the Paso Robles Groundwater Basin will likely be pursued with minimal coordination, missing important opportunities to realize restoration and conservation efficiencies and cost savings.

Other Comments:

Oceano Drainage Improvement Project - Hwy 1 & 13th Street

South County

Sponsoring Agency/Organization: **County of San Luis Obispo, Department of Public Works**

Contact Name: **Jeff Lee**

Affiliation: **San Luis Obispo County Flood Control & Water Conservation District**

Address: **1050 Monterey Street, Room 206, San Luis Obispo, CA 93408** Phone Number: **805-781-1043**

Email: **jlee@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Generally, the Project includes construction of approximately 1,500 feet of storm drain pipe, to convey drainage from the intersection of Highway 1 and 13th Street, and an outfall pond (sedimentation basin). The basin will collect storm flows and allow debris and sediments to settle out prior to discharge through the existing 36-inch culvert or a new box culvert located in the Arroyo Grande Creek levee.

Describe Need for Project/Program (1 to 2 sentences):

The project is located at the low point of an approximately 40.5 acre drainage shed area. The existing system is undersized for small storm events and as a result floods the Hwy 1 and 13th Street intersection and adjacent properties. The project will reduce the frequency of drainage issues at Hwy 1 and 13th Street by constructing drainage facilities that collect and convey flows to the Arroyo Grande Creek channel. The project will also lessen flows to the Meadow Creek Lagoon area, thereby_ helping to mitigate the existing drainage issues for downstream residences, businesses and the South County Sanitation District facilities. The project will reduce maintenance and storm related management of the surrounding area. It will improve access and circulation on Hwy 1 and adjacent roadways as well as increasing the efficiency of road operations and improve emergency response times for the surrounding area.

Project Website (if any):

http:__www.slocountywater.org

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **Hwy 1 & 13th Street**

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map:

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$2,699,000**

Source of Cost Estimate:

Project Status:

Describe status of permitting: **In process (25%)_ estimated completion by June 2014**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

In process (50_10%)_ estimated completion by Dec 2012_ Dec 2014

Estimated ProjectStart Date: **7/1/2010**

Estimated ProjectEnd Date: **10/1/2014**

Identify proposed funding sources: **County funds to Speial District (Flood Control), Caltrans, SLOCOG (USHA & RSHA), FAA grant and CDBG program**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Project includes road-side infiltrators to direct storm water back into the ground water acquifer.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Sediment basin and road-side infiltrators will remove debris & sediment from storm water_ improving water quality.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Project includes road-side infiltrators to direct storm water back into the ground water aquifer.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The project provides flood water management to alleviate flooding of properties adjacent to Hwy 1 at its intersection with 13th Street. This project will provide the opportunity for adjacent properties to develop to their best and highest use within the County Planning land use guidelines. This project improves conditions at Hwy 1 & 13th Street by conveying storm water away from intersection to AG Creek and addresses long-term stormwater issues at Hwy 1 & 13th Street by installating storm drains, basin & infiltrators. It also provides flood management & protection to travelling public and emergency services

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The project provides benefits to Oceano, a disadvantaged community as defined by HUD. Area benefits include improved traffic safety and emergency response times since the project will alleviate flooding conditions at the intersection of Hwy 1 and 13th Street in Oceano. Demonstrating the degree of benefit can be accomplished by quantifying the amount of time Hwy 1 will be open during storm events (post project) as compared to the pre-project closure time.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Project funding sources for this project include: San Luis Obispo Council of Governments (Urban State Highway and Regional State Highway Accounts), State Department of Transportation (Caltrans) and Housing & Urban Development (CDBG Program). County, Caltrans and OCSD are working together to improve Oceano area by developing program to construct curb, gutter and sidewalk improvements in a concerted and public driven pattern.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the roadway will continue to flood in smaller storm events, resulting in road closures and increased emergency response times during storm events. This has the potential to impact the health and safety of the travelling public and adjacent community.

Other Comments:

Off Stream Storage within the North County

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)**

Contact Name: **Jerry Reaugh, Board President**

Affiliation: **Paso Robles Agriculture Alliance for Groundwater Solutions**

Address: **P. O. Box 1499, Paso Robles, CA 93447** Phone Number: **(805) 440-7300**

Email: **jerry@reaughj.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Develop offstream storage in the North County to be capable to store several sources of water including but may not be limited to: Entitlement water from the Nacimiento Water Project that is subject to being lost because of a lack of carryover storage in Lake Nacimiento, opportunity flood waters off rivers and streams, opportunity waters within the alluvium of the Salinas River and its tributaries that are supplemental to waters already appropriated by others, and recycled water from wastewater treatment plants.

Describe Need for Project/Program (1 to 2 sentences):

The project will require the installation of water conveyance infrastructure (pumps, pipes) and an off stream reservoir site(s) to store several thousand acre-feet of water in temporary holding facilities. This water will then be distributed to help recharge the Paso Robles Groundwater Basin, most likely via in-lieu recharge.

Project Website (if any):

n_a

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **North County and South County**

Nearest Cross Street or Street Address: **North County of San Luis Obispo County**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Agricultural, Rural Residential, Golf Courses**

Watershed (if known) See Map: **Salinas, Creston and Shandon**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Grants and Bonds**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **San Luis Obispo**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, water conservation is increased by having off stream reservoir(s) in the North County vicinity. There is water entitlement within Lake Nacimiento that can be stored in the off stream reservoirs, otherwise it is lost if not used in the year. There is stromwater available in the rivers and streams to capture and not let flow to the ocean. Participants in the Nacimiento Water Project can bank their entitlement within an off stream reservoir. The stored waters can be distributed within the North County and used for in-lieu recharge to the Paso Robles Groundwater Basin.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, this project would preserve water rights on the Nacimiento River. Annual any of the County's Nacimiento Entitlement not used is reverted back to Monterey County. An off-stream storage within SLO County would allow for this unused entitlement to be stored and used when needed within SLO County.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The change in storage of the Paso Robles Groundwater Basin decreases significantly when there is drought because the demands, largely agricultural and M&I, go up while the inflow is decreased. Utilizing the waters stored in an off stream reservoir will be used for in-lieu recharge of the Basin to keep the Basin's inflow in balance with the outflow during drought.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Improvements to water quality are not fully understood at this time.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship,

ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Improvements to environment are not fully understood at this time.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, the water within the basin will be distributed within the basin for both direct recharge (where available) and in-lieu recharge of the Paso Robles Groundwater Basin.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Improvements to flood management are not fully understood at this time.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, the project will be available for many agencies to store their water within the off stream reservoir(s). The communities that rely on groundwater will have improved management of the groundwater resources by allowing the surface water to be recharged via in-lieu recharge. The waters of the North County will stay in the county and be controlled by a local agency that partners with other water purveyors in the area.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

San Luis Obispo can temporarily bank their Nacimiento entitlement in the off stream reservoir(s). San Miguel's groundwater supplies will benefit by the in-lieu recharge of the Basin and thus putting the inflow and outflow of the basin in balance.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Climate change has not been assessed at this time.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The partnership that is expected to collabratively work together includeds the Nacimiento Water Commission, the County Flood Control and Water Conservation District, the Cities of Paso Robles and San Luis Obispo, Atascadero Mutual Water Company, and CSD's along the Salinas River.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Water that is entitled within SLO County will continue to be lost and flow into Monterey County. This water volume is significant and should be used to help balance the groundwater resrouces of the Paso Robles

Basin.

Other Comments:

This is a long term project that will bring several stakeholders together to find the best site(s) for offstream storage to allow SLO County the local-control of our water resources.

Paso Robles Groundwater Basin In-Lieu Recharge Study and Preliminary Layout

North County

Sponsoring Agency/Organization: **Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)**

Contact Name: **Jerry Reaugh, Board President**

Affiliation: **Paso Robles Agriculture Alliance for Groundwater Solutions**

Address: **P. O. Box 1499, Paso Robles, CA 93447** Phone Number: **(805) 440-7300**

Email: **jerry@reaughj.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The inflow to the Paso Robles Groundwater Basin is heavily dominated by percolation from precipitation on the land and percolation through the boundaries of flowing streambeds, estimated on average to be 79% of all inflow to the Basin by Fugro (2005 Study). During drought, this inflow to the Basin is signficantly reduced_ therefore, a supplemental source of inflow is needed, and this can be accomplished through in-lieu recharge of the basin. A distribution system needs to be laid out for the North County Region to supply surface waters to irrigated (agricultural and golf courses) and rural residental areas. The water sources could potentially be: Nacimiento Water Project water, State Water Project water, and opportunity storm flows on the rivers and streams within the area.

Describe Need for Project/Program (1 to 2 sentences):

The project is needed to bring the Paso Robles Groundwater Basin in-balance during periods of drought.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **North County of San Luis Obispo, overlying the Paso Robles Groundwater Basin**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Agricultural, Rural Residential, and Golf Courses**

Watershed (if known) See Map: **Salinas, Creston and Shandon**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Grants and Bonds**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the project will increase water in the groundwater basin. Water sources could be raw water, potable water, and recycled water.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Existing supplies of water (Nacimiento, State Water, Salinas River) will be used in the in-lieu recharge system.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The system will improve the delivery of water from sources of supply to areas of stress caused by high demand coupled with dought-driven low inflow to the groundwater basin.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Improvements to water quality are not currently known.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Improvements to the environment are not currently known.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, the project will improve groundwater management as its intent is to stablize and improve the groundwater in storage by providing a supplemental supply to the basin during periods of drought. During

wet periods, the in-lieu recharge is expected to increase the water in storage as the natural inflow will be greater than the demand on the basin. The Basin is not currently classified as 'in overdraft' but it is generally believed that the perennial yield is beign exceeded during drough conditions.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, the project will benefit agricultural, rural residential, recrecation (golf courses) and organized communities and water companies. A large-scale collaboration of stakeholders will be involved in this project.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Technically, no_ however, there are areas of densely subdivided rural residental areas that economically could be judged as DAC, but are presently not identified on the DAC list.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The parties expected to be collaborative partners in this project include but are not limited to the State Department of Water Resources, San Luis Obispo County Flood Control and Water Conservation District, Nacimiento Water Commission, Cities of San Luis Obispo and Paso Robles, Atascadero Mutual Water Company, Community Services Districts of Templeton and Ground Squirrel Hollow, and currently unorganized subdivided areas of Jardine, Geneseo, and Creston.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The decline of the Paso Robles Groundwater Basin during drought periods, and perhaps even during non-drought conditions, would continue.

Other Comments:

Paso Robles Groundwater Basin Restoration and Basin Recharge

North County

Sponsoring Agency/Organization: **Upper Salinas-Las Tablas Resource Conservation District**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas-Las Tablas Resource Conservation District**

Address: **65 S. Main Street, Templeton, CA** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Manage the Paso Robles Groundwater Basin by installing removable bladder dams on Salinas River and tributaries. Alsio, perform water extraction from deep aquifer strata and inject into shallow aquifer strata.

Describe Need for Project/Program (1 to 2 sentences):

San Luis Obispo County Board of Supervisors declared the Paso Robles Groundwater Basin to be at a Severity Level III and solutions need to be identified and implemented.

Project Website (if any):

None

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Various Salinas River tributaries**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agicultural Land**

Watershed (if known) See Map: **Upper Salinas River, Huero Huero Creek, and San Juan Creek**

Project Cost Range: **$500K-$1M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA compliance has not been completed

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, removable bladder dams would create retention_detention water pools that would capture stormwater runoff for percolation in the aquifer.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, capturing stormwater runoff for percolation into the aquifer has a sustainability benefit for overlying aquifer users.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, water extraction from deep aquifer strata and injection into shallow aquifer strata prevents impacts of drought.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, use of removable bladder dams will facilitate local mangement of sediment.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes, the Paso Robles Groundwater Basin is replenished by rainwater. Capturing runoff for percolation to the basin is a benefit to the overlying aquifer users.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, water extraction from deep aquifer strata and injection into shallow aquifer strata will recharge shallow srata more quickly than rainfall alone.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes, removable bladder dams assist in flood control by slowing down water flow and increasing

percolation.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, extraction from deep strata would be done by ag for the benefit of rural residential water users.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes, San Miguel is being included in this project.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes, retaining beneficial use of stormwater runoff by recharging an aquifer is a water conservation tool.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The partnering agencies are US-LT RCD, SLOFC & WC District, San Miguel Community Services District and CA Fish and Wildlife.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The Paso Robles Groundwater Basin will remain at a Level of Severity III and the aquifer could go into adjudication due to water overdraft.

Other Comments:

Phase 2 - Lake Nacimiento Potable Water Treatment Plant

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **City of Paso Robles**

Contact Name: **Christopher Alakel**

Affiliation: **City of Paso Robles**

Address: **1000 Spring St., Paso Robles, California 93446** Phone Number: **805-237-3861**

Email: **calakel@prcity.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project involves the construction of a Phase 2, potable water treatment plant having a capacity of 4 million gallons per day (mgd). Construction of this plant will enable full utilization of the City's Lake Nacimiento water allocation (4,000 AF_YR) and enable the City to contract for additional Nacimiento water supplies in the future. The plant will utilize microfiltation membrane treatment technology.

Describe Need for Project/Program (1 to 2 sentences):

As of 2013, the City of Paso Robles is entirely dependent on groundwater from the declining Paso Robles Groundwater Basin. Groundwater levels in the immediate area around Paso Robles have fallen over 100 feet in the last 15 years and continue to fall at a rate of 7+ feet per year. The City has made a large financial committment along with other regional partners to reduce it's dependence on the basin through development of supplemental Lake Nacimiento supplies. The project will enable full utilization of the City's 4,000 AF_YR lake Nacimiento water allocation, relieving water demands on the groundwater basin.

Project Website (if any):

Subregion (See Map) **Regional** **(2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Highway 46 and Highway 101**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **Salinas**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Completed, 2008

Estimated ProjectStart Date: **1/1/2020**

Estimated ProjectEnd Date: **6/30/2021**

Identify proposed funding sources: **Water Rate Revenues**

What is the Percent Range of Matching Funds? **>51%**

Does Project Serve a Disadvantaged Community (DAC)? **Paso Robles**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project will significantly increase the availability of supplemental water supplies for beneficial use within the stressed Paso Robles Groundwater Basin. In addition, it will provide increased potable water supply capacity for Paso Robles, which is now operating under a summertime supply deficit, necessitating outdoor water restrictions.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project will provide multiple water supply benefits within the North County region, including improving accessibility to existing surface water rights and improved groundwater management which will benefit all users in the groundwater basin.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project will improve the current summertime water supply deficit within the City of Paso Robles and improve the long-term water supply reliability for the City.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Lake Nacimiento water is significantly lower in Total Dissolved Solids and Hardness than the City's existing groundwater supplies. The project will significantly improve the quality of water delivered to customers within the City, enabling water softener use to be greatly reduced. This will improve the quality of wastewater discharged to the Salinas river and enable the future use of recycled water by irrigation users inside and outside the City of Paso Robles.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship,

ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The project will result in improved quality of wastewater discharged to the Salinas River.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The project will enable the City to reduce groundwater pumping which will have a positive impact to the management efforts within the Paso Robles Groundwater Basin.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. Implementation of the project would have a positive impact on cooperative and collaborative efforts to manage the groundwater basin.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Paso Robles has been designated as a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. The treatment plant will be designed with the latest available energy saving technology.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The Project will increase utilization of the Nacimiento Water Project, a County-wide regional supplemental water supply project.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, the City will continue to be largely dependent on the declining Paso Robles Groundwater Basin. Summertime supply reliability concerns will continue. A key supplemental water supply for the basin will remain unused and regional groundwater management benefits will not be achieved.

Other Comments:

Pismo Beach Recycled Water System

South County

Sponsoring Agency/Organization: **City of Pismo Beach**

Contact Name: **Benjamin Fine**

Affiliation: **City of Pismo Beach**

Address: **760 Mattie Road, Pismo Beach, CA 93449** Phone Number: **805-779-1201**

Email: **bfine@pismobeach.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project includes the design and construction of a recycled water treatment and distribution system for the City of Pismo Beach. The project would make recycled water available for its customers and potentially others in the South County Sub-region if excess recycled water is available.

Describe Need for Project/Program (1 to 2 sentences):

This project addresses the need for reliable water supply during periods of drought and would augment the City's diversified water supply portfolio. The implementation of a recycled water project would reduce the City's dependence on imported SWP water and reduce demands on the South County Sub-Region's potable water supplies.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **760 Mattie Road, Pismo Beach, CA 93449**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Multiple**

Watershed (if known) See Map: **Five Cities**

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Design Phase**

Describe status of permitting: **Pending**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Pending

Estimated ProjectStart Date: **10/1/2014**

Estimated ProjectEnd Date: **10/1/2016**

Identify proposed funding sources: **None**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the project would utilize new recycled water supply sources for the following, but not limited to, uses: landscape irrigation_ agriculture irrigation_ industrial uses_ seawater intrusion barrier_ stream flow augmentation_ groundwater recharge_ etc.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, the project would augment existing water supply availability and increase reliability by supplying non-potable uses that are currently served with potable water.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, the project would augment existing water supply availability and increase reliability, including drought preparedness, by supplying non-potable uses that are currently served with potable water.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, the use of recycled water use would have to comply with the water quality requirements of the CCRWQCB's Basin Plan and could be used to prevent seawater intrusion.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Recycled water could be used for stream flow augmentation or to offset extractions from surface water and groundwater sources. This would provide additional water for ecosystem restoration and_or environmental water demands.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes, groundwater basin monitoring and management would be an integral part of the Recycled Water System. Additionally, a Recycled Water System would provide a source of supply for groundwater banking

and recharge.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, implementation of a Recycled Water System would include extensive public outreach, stakeholder collaboration and consumer education.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes, the community of Oceano would benefit from enhanced groundwater supply reliability.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes, a Recycled Water System could be utilized to reduce the impacts of sea level rise through the development of a seawater intrusion barrier. Additionally, reclaiming locally produced wastewater may produce lower greenhouse gas emissions than importing addition State Water Project Water.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project stakeholders would include regional wastewater agencies, agricultural interests, recycled water producers, private well owners, environmental groups, regulatory agencies and the general public.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this project is not implemented, wastewater generated by Pismo Beach will continue to be discharged to the ocean and not utilized to improve the water supply reliability for the South County Sub-Region.

Other Comments:

Portions of Pismo Beach are considered DACs when analyzed at the block and census block level. The DACs would benefit from the project by having increased water supply reliability. The project could make recycled water available to other DACs, such as Oceano, in the South County Subregion as well.

Pismo Creek Watershed Program

South County

Sponsoring Agency/Organization: **Central Coast Salmon Enhancement (CCSE)**

Contact Name: **Steph Wald**

Affiliation:

Address: **229 Stanley Ave., Arroyo Grande, CA 93420** Phone Number: **805-471-3789**

Email: **steph@centralcoastsalmon.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Pismo Creek Watershed Program will implement specific project recommendations arising from the Pismo Creek Watershed Management Plan (CCSE, 2009) and the Pismo Creek Estuary Restoration Plan (CCSE, 2012) that include fish passage improvement, habitat enhancement, water quality, community education and flood protection components. Projects are: Pismo Creek Fish Passage Improvement Project at Price Canyon_UPRR crossing, Hyla Crossing Improvement Project at PXP Arroyo Grande Oil Field (Price Canyon), West Corral de Piedra Fish Passage Improvement Project at Highway 227, Riparian Fencing Plan, LID Tributary Area BMP Project including BMP Rebate Program for City of Pismo Beach, Pismo Creek Estuary Education and Restoration Project, and Constructed Wetlands Project upstream of the Estuary.

Describe Need for Project/Program (1 to 2 sentences):

The Pismo Creek Watershed Program is needed to continue involving watershed landowners, residents and pertinent agencies in addressing steelhead barrier remediation, estuary water quality issues, habitat degradation and flood protection values.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **includes urban, ag and rural residential land uses**

Watershed (if known) See Map:

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **Program projects are at various stages of planning and permitting.**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **National Fish and Wildlife Foundation, Urban Stream Restoration Program, CDFW Fisheries Restoration Grant Program**

What is the Percent Range of Matching Funds? **>51%**

Does Project Serve a Disadvantaged Community (DAC)?

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The tributary LID project improves stormwater quality

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The City of Pismo Beach, the Coastal San Luis RCD, CCSE and State Parks have been cooperating on various of the proposed project slate.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Raising Santa Margarita Dam

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)**

Contact Name: **Jerry Reaugh, Board President**

Affiliation: **Paso Robles Agriculture Alliance for Groundwater Solutions**

Address: **P. O. Box 1499, Paso Robles, CA 93447** Phone Number: **(805) 440-7300**

Email: **jerry@reaughj.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Santa Margarita Dam, constructed in 1941 by the U.S. War Department, has a crest height, was never completed to allow for full storage because the spillway gate(s) was left off the ogree spillway crest. The Project would involve evaluation of alternatives to upgrade the dam to meet California DSOD safety guidelines, and install spillway crest gates to increase the water conservation storage capacity of the reservoir.

Describe Need for Project/Program (1 to 2 sentences):

The Paso Robles Groundwater Basin is recharged by flows within the Salinas River, and the Santa Margarita Dam is located on the river upstream of the Basin. The additional storage held as water conservation and released during the summer_fall seasons to recharge both the alluvium and Paso Robles formations. Furthermore, other infrastructure will be considered to divert the water conservation flows to areas of need east of the river.

Project Website (if any):

n_a

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **North and South County Subregions**

Nearest Cross Street or Street Address: **Santa Margarita Reservoir on Salinas River off of Pozo Road**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Agricultural, Rural Residential, Golf Courses**

Watershed (if known) See Map: **Salinas**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Grants and Bonds**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Luis Obispo**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Additional water will be conserved behind the dam because it has greater storage once the gates are installed. The operations of the dam will be re-operated to improve the delivery of conserved water. Water will be conveyed from the reservoir into the Paso Robles Groundwater Basin for recharge of the Basin.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, the existing dam will be improved. The existing outlet structures, which are original with the 1941 dam, will be modernized. The existing pipeline from the dam to the Booster Pump Station will be evaluated and considered as flowing water from the Nacimiento Water Project back to the Santa Margarita Lake to 'bank' the Nacimiento water reservoir. The Project will also include improving the existing ogee spillway by installing crest gates. And the project will include modifications to the dam as necessary to upgrade the structure to meet DSOD dam safety guidelines.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The improvements will be a vast improvement to the efficient use of water in the North County because more runoff water that normally flows to the ocean will be captured as conservation water. The project can potentially store Nacimiento Water and perhaps dechlorniated State Water Project water. Reoperaiton of the dam will provide a flow of water into the alluvium during the summer_fall period when typically releases are set at zero.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Improvements to water quality are not fully understood at this time.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project may improve riparian habitat and may provide longer active flow in the main stem of the Salinas River.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The essential purpose of implementing the project is to improve the groundwater management of the Paso Robles Groundwater Basin. The water conserved behind the dam can be delivered to the Basin and supplement the natural recharge and the better balance the basin inflow during dry periods.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

It is predicted tha the project will improve flood management through the SLO County communities downstream of the dam because uncontrolled discharges will no longer flow from the reservoir once the gates are installed upon the dam.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project will certainly be an integrated collabroative project between SLO Cities and communities and the agricultural region in the North County.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The DAC of San Miguel and San Luis Obispo will benefit. San Miguel will benefit from the release of conserved water into the alluvium during the typical summer_fall dry seasons. San Luis Obispo will benefit from improvements and protection of their existing water rights with the dam safety improvements to the dam.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

At this time climage change elements are not considered to be measurable.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The partnership that is expected to collabratively work together includeds the City of San Luis Obispo, the County Flood Control and Water Conservation District, the City of Paso Robles, Atascadero Mutual Water Company, and CSD's along the river downstream of the dam.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Not implemnting the project will put the currently permitted Salinas River diversion at risk if no entity takes benefical use of the potential storage behind the dam. The conserved water will be used to supplement the groundwater storage of the Paso Robles Groundwater Basin to keep the Basin in balance with the annual safe yield which during the dry drought periods typically results a significant decrease in the change in storage.

Other Comments:

The Santa Margarita Dam is an extremely important hydraulic structure within the North County, and for 72 years this asset has been under utilized with regarding to its potential to conserve water for additional and supplemental use during dry period. The time has come where a collaborative effort can result in taking advantage of this existing hydraulic structure.

Rancher 2 Rancher Program

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **Nicole Smith**

Affiliation: **Conservation Programs Manager**

Address: **645 Main St., Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **nsmith@coastalrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Rancher 2 Rancher Program will utilizing the knowledge of progressive ranchers to share their experiences implementing best management practices with other local ranchers leading to improved implementation rates of good grazing practices. The Program is successfully implemented in other parts of California. It is tied to land management and BMPs that reduce climate change impacts.

Describe Need for Project/Program (1 to 2 sentences):

Large portions of our County are ranch and grazing lands. We do not have a consistent grazing program in place that supports ranchers through technical and funding assistance.

Project Website (if any):

nsmith@coastalrcd.org

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **Countywide**

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **agriculture**

Watershed (if known) See Map: **all watersheds**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **N_A**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

N_A

Estimated ProjectStart Date: **7/6/1905**

Estimated ProjectEnd Date: **7/9/1905**

Identify proposed funding sources: **IRWM, in-kind contributions and potential grant funding. If the project is accepted into the regional grant additional work can be completed to produce a line item budget and estimate contributions.**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes indirectly

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes indirectly

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes indirectly

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood

control projects, system operations, stream/floodplain restoration, etc.)?

Yes indirectly

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

We will work with the USLT RCD, Natrual Resource Conservation Service, UC Cooperative Extension and Cattleman_woman's .

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

Recycle Water Distribution System Expansion

South County

Sponsoring Agency/Organization: **City of San Luis Obispo**

Contact Name: **Wade Horton**

Affiliation: **City of San Luis Obispo**

Address: **919 Palm St, San Luis Obispo, CA 93401** Phone Number: **whorton@slocity.org**

Email: **gray@grover.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

Extend the recycled water distribution system from the City's existing main on Madonna Road approximately 2,000 feet to serve CL Smith Elementary School. The site, which currently uses approximately 12 acre feet annually of potable water for landscape irrigation, was identified as a priority connection as it is located proximate to an existing backbone recycled water main.

Describe Need for Project/Program (1 to 2 sentences):

The City estimates demand exists for approximately 1,000 acre feet of recycled water for landscape irrigation. Approximately 400 acre feet of this demand will be realized from extending the recycled water distribution system to serve the landscape irrigation of existing development in the City similar to this project.

Project Website (if any):

The City's Utilities Department website is: www.slocity.org_utilities

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **CL Smith Elementary, 1375 Balboa Street**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Public Facility**

Watershed (if known) See Map: **San Luis Obispo, Avila**

Project Cost Range: **$250K-$500K**

Project Cost (if known): **$400,000**

Source of Cost Estimate: **Agency**

Project Status: **Ready for Implementation**

Describe status of **Final coordination with San Luis Coastal Unified School District to be**

permitting: **completed prior to construction.**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Completed

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **6/30/2014**

Identify proposed funding sources: **Water Fund**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Luis Obispo**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. Recycled water increases water conservation and reuses water for landscape irrigation.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. The City's General Plan Water and Wastewater Management Element includes goals include utilizing recycled water for non-potable purposes, thereby offsetting the use of potable water and maximizing the use of the City's available recycled water supply for approved uses. The project to extend the City's distribution system to serve CL Smith Elementary School will result an offset of 12 acre feet of potable water -- enough to serve the total potable water needs of 30 residences for a year.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. This project recycles water, thereby increasing water supply and storage, in event of a drought.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

No.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

No.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. This project encompasses urban water management plans, and adheres to water meter requirements, AB 1420, BMP and CEQA compliances.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

CL Smith Elementary School currently uses approximately 12 acre feet annually potable water for landscape irrigation. The site was identified as a priority connection as it is located proximate to an existing backbone recycled water main. The City's General Plan Water and Wastewater Management Element includes goals include utilizing recycled water for non-potable purposes, thereby offsetting the use of potable water and maximizing the use of the City's available recycled water supply. The City has been delivering recycled water since 2006 and delivered approximately 165 acre feet in 2012.

Other Comments:

Recycled Water Treatment and Distribution System - Phase 1

North County

Sponsoring Agency/Organization: **City of Paso Robles**

Contact Name: **Christopher Alakel**

Affiliation: **City of Paso Robles**

Address: **1000 Spring St., Paso Robles, California 93446** Phone Number: **805-237-3861**

Email: **calakel@prcity.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project involves the construction of the first phase of a recycled water treatment and distribution system to provide tertiary treated, Title 22 water for delivery to irrigation users located within the City of Paso Robles and outside the City. The facilities to be constructed include tertiary filters, pump stations, chemical feed system, recycled water storage, and approximately 4,800 feet of 24' recycled water transmission main. The transmission main will be over-sized to provide in the future up to 4.9 million gallons per day of recycled water supply at the City's target buildout population of 44,000. The Phase 1 project will be capable of providing an estimated 0.86 MGD of water to meet summertime irrigation demand in the Phase 1 service area. Phase 2 and 3 of the system would be constructed at a later time and when completed, would be capable of providing up to 4.9 MGD of water.

Describe Need for Project/Program (1 to 2 sentences):

The City of Paso Robles lies within the highly stressed Paso Robles Groundwater Basin. The City's wastewater treatment plant currently produces about 3,300 AF_YR of water that could be treated to tertiary standards and made available for irrigation of schools, parks, roadway landscaping, as well as golf courses and agricultural lands now supplied by private wells along the periphery of the City's east side. At the City's target buildout population of 44,000, an estimated 5,400 AF_YR of recycled water could be made available to irrigation users. The recycled water supply will offset groundwater pumping by the City and private wells owners providing benefits to all groundwater users in the Paso Robles groundwater basin.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **North County Region**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Agricultural.**

Watershed (if known) See Map: **Salinas**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **Not yet begun**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not yet begun

Estimated ProjectStart Date: **1/1/2018**

Estimated ProjectEnd Date: **1/1/2019**

Identify proposed funding sources: **To be determined**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **Paso Robles**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. The project would be the first phase in developing a significant new supplemental water supply for the highly stressed Paso Robles Groundwater Basin.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. The project will provide improvements to existing water supplies, increasing water supply reliability for water customers of the City of Paso Robles, area golf courses, agricultural water users, and rural residents in the basin.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project will improve water supply reliability within the City of Paso Robles and for all groundwater users within the Paso Robles Basin.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes the project will result in improved water quality in the Salinas River. The project will reduce the quantity of wastewater discharged to the river, reducing the discharge of salts and nutrients to the river.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The project will result in improved water quality within the Salinas River by reducing the discharge of effluent high in TDS.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The project will produce environmental benefits through improved Salinas River water quality.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. The project will involve the use of recycled water by golf, agricultural and other entities outside the City of Paso Robles now supplied by private wells. Therefore, it will facilitate collaboration among urban, agricultural, commercial, and rural residential interests.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Paso Robles has been designated as a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project will likely involve cooperative agreements between the City of Paso Robles and agricultural interests, golf interests, and potentially a future Paso Robles Groundwater Basin Management District.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, a very significant supplemental water supply within the Paso Robles Groundwater Basin will remain underutilized.

Other Comments:

The City of Paso Robles is in the process of completing a recycled water system master plan that recommends a future recycled water distribution system to serve current and future irrigation uses within the City's east side and agricultural and golf users on the City's periphery. The primary challenge for Paso Robles in implementing a recycled water program that will benefit the groundwater basin is the high capital

cost of the planned treatment and delivery system. This challenge is highlighted by the fact that the great majority of the potential demand for recycled water is by users now supplied by private wells and located outside city limits. Therefore, grant funding and financial participation from outside entities will be critical in implementing the system.

Recycled Water Treatment and Distribution System - Phases 2_3

North County

Sponsoring Agency/Organization: **City of Paso Robles**

Contact Name: **Christopher Alakel**

Affiliation: **City of Paso Robles**

Address: **1000 Spring St., Paso Robles, California 93446** Phone Number: **805-237-3861**

Email: **calakel@prcity.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

The project involves the construction of the second and third phases of a recycled water treatment and distribution system to provide tertiary treated, Title 22 water for delivery to irrigation users located within the City of Paso Robles and outside the City. The facilities to be constructed include tertiary filters, pump stations, chemical feed system, recycled water storage, and approximately 34,800 feet of 24' through 10' recycled water transmission main. The Phase 2_3 recycled water system will be sized to provide up to 4.9 million gallons per day of recycled water supply at the City's target buildout population of 44,000.

Describe Need for Project/Program (1 to 2 sentences):

The City of Paso Robles lies within the highly stressed Paso Robles Groundwater Basin. The City's wastewater treatment plant currently produces about 3,300 AF_YR of water that could be treated to tertiary standards and made available for irrigation of schools, parks, roadway landscaping, as well as golf courses and agricultural lands now supplied by private wells along the periphery of the City's east side. At the City's target buildout population of 44,000, an estimated 5,400 AF_YR of recycled water could be made available to irrigation users. The recycled water supply will offset groundwater pumping by the City and private wells owners providing benefits to all groundwater users in the Paso Robles groundwater basin.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **North County Region**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Agricultural.**

Watershed (if known) See Map: **Salinas**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **Not yet begun**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Not yet begun

Estimated ProjectStart Date: **1/1/2025**

Estimated ProjectEnd Date: **1/1/2027**

Identify proposed funding sources: **To be determined**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **Paso Robles**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. The project would be the first phase in developing a significant new supplemental water supply for the highly stressed Paso Robles Groundwater Basin.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. The project will provide improvements to existing water supplies, increasing water supply reliability for water customers of the City of Paso Robles, area golf courses, agricultural water users, and rural residents in the basin.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The project will improve water supply reliability within the City of Paso Robles and for all groundwater users within the Paso Robles Basin.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes the project will result in improved water quality in the Salinas River. The project will reduce the quantity of wastewater discharged to the river, reducing the discharge of salts and nutrients to the river.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The project will result in improved water quality within the Salinas River by reducing the discharge of effluent high in TDS.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The project will produce environmental benefits through improved Salinas River water quality.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. The project will involve the use of recycled water by golf, agricultural and other entities outside the City of Paso Robles now supplied by private wells. Therefore, it will facilitate collaboration among urban, agricultural, commercial, and rural residential interests.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. Paso Robles has been designated as a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project will likely involve cooperative agreements between the City of Paso Robles and agricultural interests, golf interests, and potentially a future Paso Robles Groundwater Basin Management District.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented, a very significant supplemental water supply within the Paso Robles Groundwater Basin will remain underutilized.

Other Comments:

The primary challenge for Paso Robles in implementing a recycled water program that will benefit the groundwater basin is the high capital cost of the planned treatment and delivery system. This challenge is highlighted by the fact that the great majority of the potential demand for recycled water is by users now supplied by private wells. Therefore, grant funding and financial participation from outside entities will be critical in implementing the system.

Regional Implementation of Groundwater Management Activities

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Various (depends on basin)**

Contact Name: **Courtney Howard**

Affiliation: **County of San Luis Obispo**

Address: **County Government Center, Rm 207, San Luis Obispo, CA 93408**

Phone Number: **(805) 781-1016**

Email: **choward@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Implementation of groundwater management activities would be guided by each groundwater basin management plan or similar guiding document. Efforts would focus on priority basins in SLO County IRWM Region, and would include implementation activities listed in each basin's groundwater management plan, such as, groundwater monitoring, demand management, best management practices, water conservation or other methods best suited for that basin.

Describe Need for Project/Program (1 to 2 sentences):

Many of the communities in the region are partially or solely dependent on one of the 25 local groundwater basins, many of which face challenges such as declining levels due to increasing demands and_or water quality degradation (nitrates, seawater intrusion, geothermal, or other). Groundwater basin management will require some combination of management activities in order to remedy the water quality issues and_or supplement or replenish the groundwater available.

Project Website (if any):

N_A

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **Could include priority groundwater basins in any of the three Sub-Regions.**

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Various**

Watershed (if known) See Map: **Various**

Project Cost Range:

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **Various (depends on basin)**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Various (in some cases N_A)

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Will identify once priority implementation activities are identified**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. Some of the primary means of stabilizing declining groundwater basin levels will be achieved through conservation and best management practices_ water use efficiency in the urban, rural and agricultural use sectors. Implementation activities would likely include developing and implementing conservation programs, measures and practices to increase water use efficiency and maximize water supplies.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. Implementing groundwater management activities focuses on creating sustainable groundwater use whether by implementing best management practives, demand management, and_or conservation measures.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. By focusing on stabilizing declining groundwater levels, groundwater quality can be protected or improved. For example, by stabilizing declining groundwater levels, coastal aquifers can decrease the influence of seawater intrusion on water quality.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship,

ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Potentially. Groundwater management activities could include demand management depending on each basin's needs, which could include land use management by way of ordinances and policies related to rural, agriculture, and urban users, as well as new developments.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The objective of a Regional Implementation of Groundwater Management Activities program would be to improve groundwater management in priority basins. The activities implemented would depend on the guiding groundwater management document in each priority basin, but might include activities such as, groundwater monitoring, demand management, best management practices, water conservation or other methods.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. Several implementation activities could include implementation of low impact development and_or groundwater recharge projects, providing flood management in priority basins (where appropriate).

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. This program could help to instill a collaborative approach to water management between the rural, urban, and agricultural user sectors. It could also support education related to best management practices and conservation methods.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Potentially. This will depend on the priority groundwater basin where activities are being implemented. There are four disadvantaged communities indicated by the State DWR: San Simeon (overlying the Pico Creek Valley Groundwater Basin), San Miguel (overlying the Paso Robles Groundwater Basin), City of San Luis Obispo (overlying the San Luis Obispo Valley Groundwater Basin and its sub-basins), and Oceano (overlying the Santa Maria Valley Groundwater Basin).

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Low impact development and groundwater recharge projects would increase the groundwater available, thereby offsetting a portion of the new imported water supply sources required to stabilize basin levels and meet water demands. This would reduce the amount of water imported, and the energy needed to convey the imported water.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

This will depend on the priority groundwater basin implementing activities. Partnerships may be necessary depending on who benefits from the implementation of groundwater management activities.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If groundwater management activities are not implemented, priority groundwater basins will continue to see the current (if not worsening) water quality issues, declining levels, and other issues with overall basin management.

Other Comments:

This regional program would be further defined by the groundwater management planning efforts in priority basins throughout the SLO County IRWM Region.

Regional Recycled Water System (Pismo Beach and SSLOCSD)

South County

Sponsoring Agency/Organization: **City of Pismo Beach**

Contact Name: **Benjamin Fine**

Affiliation: **City of Pismo Beach**

Address: **760 Mattie Road, Pismo Beach, CA 93449** Phone Number: **805-779-1201**

Email: **bfine@pismobeach.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Based on the results of the Regional Recycled Water Strategic Plan currently being developed, develop a recycled water system that includes the City of Pismo Beach Wastewater Treatment Plant and South San Luis Obispo County Sanitation District (SSLOCSD) Wastewater Treatment Plant (Regional Recycled Water System). A Regional Recycled Water System would allows the SSLOCSD member agencies and the City of Pismo Beach to diversify their water supply portfolios, reduce reliance on surface water imports and groundwater pumping, reduce the discharge of treated wastewater to the Pacific Ocean, and develop a collaborative approach to resolving the region's water resources limitations.

Describe Need for Project/Program (1 to 2 sentences):

A Regional Recycled Water System is needed to improve the long-term sustainability of South County water resources, especially during times of reduced SWP deliveries and limited groundwater recharge.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **760 Mattie Road, Pismo Beach, CA 93449**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Multiple**

Watershed (if known) See Map: **Five Cities**

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Conceptual**

Describe status of **Pending**

permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Pending

Estimated ProjectStart Date: **4/1/2015**

Estimated ProjectEnd Date: **4/1/2019**

Identify proposed funding sources: **Round 3 IRWM Implementation Grant**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the project would utilize new recycled water supply sources for the following, but not limited to, uses: landscape irrigation_ agriculture irrigation_ industrial uses_ seawater intrusion barrier_ stream flow augmentation_ groundwater recharge_ etc.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, the project would augment existing water supply availability and increase reliability by supplying non-potable uses that are currently served with potable water.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes, the project would augment existing water supply availability and increase reliability, including drought preparedness, by supplying non-potable uses that are currently served with potable water.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes, the use of recycled water use would have to comply with the water quality requirements of the CCRWQCB's Basin Plan and could be used to prevent seawater intrusion.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Recycled water could be used for stream flow augmentation or to offset extractions from surface water and groundwater sources. This would provide additional water for ecosystem restoration and_or environmental water demands.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring,

banking/recharge, etc.)?

Yes, groundwater basin monitoring and management would be an integral part of a Regional Recycled Water System. Additionally, a Regional Recycled Water System would provide a source of supply for groundwater banking and recharge.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, implementation of a Regional Recycled Water System would include extensive public outreach, stakeholder collaboration and consumer education.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes, the community of Oceano would benefit from enhanced groundwater supply reliability.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes, a Regional Recycled Water System could be utilized to reduce the impacts of sea level rise through the development of a seawater intrusion barrier. Additionally, reclaiming locally produced wastewater may produce lower greenhouse gas emissions than importing addition State Water Project Water.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The project stakeholders would include water agencies, wastewater agencies, agricultural interests, recycled water producers, private well owners, environmental groups, regulatory agencies and the general public.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this project is not implemented, wastewater generated by Pismo Beach and the SSLOCSD member agencies will continue to be discharged to the ocean and not utilized to improve the water supply reliability for the South County Sub-Region.

Other Comments:

Rehabilitation_Installation of Retention Ponds in North Coast (store & release)

North Coast

Sponsoring Agency/Organization: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Contact Name: **Laura Edwards**

Affiliation: **Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)**

Address: **65 South Main Street, Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

Create water retention basins along streams in North Coast Watersheds. Identify where groundwater recharge opportunities exist.

Describe Need for Project/Program (1 to 2 sentences):

Documented lack of water resources in North Coast communities. Heavy winter rains flow directly to Pacific Ocean. Increasing water quality will improve riparian habitats and offset climate change water quality concerns.

Project Website (if any):

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **varies: urban, agricultural, rural**

Watershed (if known) See Map: **Big Creek, San Simeon, Cambria, Cayucos Creek**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **San Simeon**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Groundwater storage, stormwater management

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Water supply management, sustainability of agricultural, rural and urban supplies.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Drought preparedness

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Improve groundwater conditions to improve water quality for agricultural water supplies.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Ecosystem restoration, recharge area protection, river_stream flow management

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Understanding of groundwater basin, overdraft threat, banking_recharge

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Watershed management, flood control project, stream_flood plain restoration

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Collaboration among urban, agricultural, rural and environmental interests

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Watershed management, critical water quality, flood control

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Agencies and local water boards, steelhead and land conservationists

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Restricted growth of North Coast agriculture and urban development. Impacts to riparian habitats as water quality decreases. More pressure on existing water supplies.

Other Comments:

San Miguel Community Services District Water System Improvements - Disadvantaged Community

South County

Sponsoring Agency/Organization: **San Miguel Community Services District - Disadvantaged Community**

Contact Name: **Rene Salas, General Manager**

Affiliation: **San Miguel CSD**

Address: **1150 Mission Street, San Miguel, CA 93451** Phone Number: **(805)467-3300**

Email: **rsalas@sanmiguelcsd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

Provide various water system improvements to the community of San Miguel, to improve water supply reliability and to improve water quality to ensure the public health and safety of the community.

Describe Need for Project/Program (1 to 2 sentences):

The identified projects will address the issues of water supply reliabiltity, improved public safety by providing adequate fire flows (replacing undersized water mains, improving system looping for better water circulation, adding water storage for public safety), and water quality issues (inadequate health separation from sanitary sewers, improved water quality to address radiounuclides and arsenic in the existing water supply, new water supply well to address both water supply reliability and water quality issues).

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map:

Project Cost Range: **$500K-$1M**

Project Cost (if known): **$950,000**

Source of Cost Estimate:

Project Status:

Describe status of permitting: **To acquire during design, 0% Complete, Estimated Completion Date: 3_15_13**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Cat Ex, 0% Complete, Estimated Completion Date: 12_31_12

Estimated ProjectStart Date: **1/15/2013**

Estimated ProjectEnd Date: **3/15/2014**

Identify proposed funding sources: **Grant**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Well 3 rehabilitation, the addition of more storage, water distribution system imrpovements and addition of backup water supply will significantly improve the reliability of the drinking water supply, to deliver water to customers and to ensure adequate fire safety.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Implementing a toilet retrofit program will reduce water demand and thus reduce pumping demand on the Paso Robles Groundwater Basin.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Improvements to Well 3, Well 4, and the SLT well will address issues of radionuclides and arsenic in the water supply, where the existing water quality exceeds or threatens to exceed primary MCLs. A new well siting study is needed to identify the best location for a new municipal water supply well, improving water quality and reliablity of the drinking water supply.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The water system improvements will allow a continued level of service to accommmodate existing land use_zoning in the San Miguel CSD service area.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

This is an area-wide benefit project activity to protect public health and safety, and reduce ongoing maintenance costs to the District serving residents of Census Tract 100.3, who are 56% low and moderate income per 2000-2003 HUD Census Data.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

N_A

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Other Comments:

San Miguel Flood Control Program

Sponsoring Agency/Organization: **San Luis Obispo County Flood Control and Water Conservation District**

Contact Name: **Jill Ogren, PE**

Affiliation: **San Luis Obispo County Public Works**

Address: **County Government Center, Room 206, San Luis Obispo, CA 93408**

Phone Number: **805.781.5263**

Email: **jogren@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

The San Miguel Flood Control Program includes implementation of Phase 1 involving an underground storm drain system followed by Phase 2 which involves construction of a continuous curb and gutter system. Storm water collection facilities (i.e. drainage pipes, ditches, etc.) are proposed to be constructed within 16th, 11th, 12th, and N Streets. A continuous curb and gutter system is proposed to be constructed throughout the community to mitigate residential flooding and provide positive gutter flow to collection facilities constructed in Phase 1.

Describe Need for Project/Program (1 to 2 sentences):

San Miguel lacks a formal drainage system which causes flooding problems throughout the community. The primary cause of flooding in San Miguel is due to the absence of a continuous positive slope and drainage conveyance path from the west side of town to the Salinas River. The railroad runs through town and serves as a barrier to storm runoff flowing from the west side of it to the Salinas River.

Project Website (if any):

Subregion (See Map)

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **San Miguel, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **residential, commercial and industrial**

Watershed (if known) See Map:

Project Cost Range: **$1M-$5M**

Project Cost (if known): **$4,142,000**

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of

permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **funding sources are currently being pursued**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Opportunities exist to enhance the design fro improvement to stormwater quality discharge and groundwater recharge to support implementation of TMDL and stormwater programs, and the California NPS Plan to increase the benefits and funding potential.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The San Miguel Flood Control Program implements an overall plan to collect and convey runoff in an organized fashion to the Salinas River. The plan includes a system of curbs, gutters, drop-inlets, constructed ditches, and underground storm drainage pipes.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local

control, etc.)?

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Implementation of the program will provide ugently needed flood protection for the disadvantaged community of San Miguel.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Frequent ponding and shallow flood occurs at several locations in the community of San Miguel. Without implementation of flood control improvements, there is serious flooding on the west side of the Union Pacific Railroad tracks especially in the vicinity of Mission Street between 11th and 16th Streets as well as continued flooding and drainage problems in some residential areas.

Other Comments:

The River Road Storm Drain was completed in September 2009. This project provided for the construction of a new 48-inch storm drain culvert and multiple inlet improvements within the 14th Street and River Road right of way, from just west of Mission Street running easterly to its outlet in the Salinas River. This improvement is intended to reduce area flooding within the San Miguel commercial area along Mission Street. The project is the keystone segment of the above described flood control program. The total project cost was $1,752,743 and was funded by a Community Development Block Grant from the U.S. Department of Housing and Urban Development.

Santa Maria Groundwater Basing Groundwater Flow Model

South County

Sponsoring Agency/Organization: **NCMA Agencies (Oceano Community Services District, Cities of Arroyo Grande, Grover Beach and Pismo Beach)**

Contact Name: **Teresa McClish**

Affiliation: **City of Arroyo Grande**

Address: **300 E Branch Street Arroyo Grande, CA 93421** Phone Number: **(805) 473-5420**

Email: **tmcclish@arroyogrande.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Develop a computational groundwater flow model and perform modeling analysis for the Santa Maria Groundwater Basin (SMGB) to: establish safe yield estimates for SMGB_ develop strategies to prevent seawater intrusion_ analyze impacts of localized pumping and develop alternative pumping strategies to improve the long-term sustainability_ and evaluate the potential for groundwater storage_conjunction use programs for the basin. This project is a continuation of the SMGB Characterization project currently being completed as part of the San Luis Obispo County IRWM Planning Grant to improve the understanding of the hydrogeology and geology of the SMGB. The groundwater model will also be developed in coordination with the proposed Salt and Nutrient Management Plan for the San Luis Obispo County portion of the SMGB.

Describe Need for Project/Program (1 to 2 sentences):

The groundwater is one of the primary or the only source(s) of supply for the agencies that overly the SMBG and this project will provide these agencies with an improved understanding of the movement of groundwater within the basin and a tool to better evaluate water resource management alternatives.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban, Ag, Rural, Etc.**

Watershed (if known) See Map: **5 Cities, Nipomo Mesa**

Project Cost Range: **$500K-$1M**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **Pending**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Pending

Estimated ProjectStart Date: **7/1/2014**

Estimated ProjectEnd Date: **12/1/2016**

Identify proposed funding sources: **IRWM Planning Grant**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the groundwater flow model will enable the agencies within the SMGB to re-evaluate or establish safe yield estimates and determine if additional water can be extracted or if changes in pumping location_timing could improve the sustainability of the groundwater supply.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Improving the understanding of the groundwater storage and movement within the SMGB will enable the overlying agencies to improve their management of this essential water supply resource. A groundwater model will enable to these agencies to: identify the safe yields for the different portions of SMGB_ develop strategies for avoiding seawater intrusion_ evaluate groundwater storage_conjunctive use programs_ etc.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The groundwater model can be utilized as an operational tool to more efficiently manage pumping within the basin. By analyzing areas of groundwater recharge, confining layers, ocean outflow requirements and groundwater storage there may be opportunities to manage_relocate pumping within the basin to increase yield and better protect against seawater intrusion.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

With a better understanding of groundwater flow within the basin, the managing agencies will be able to evaluate salt and nutrient loading and transport and develop management strategies to reduce the accumulation of these water quality constituent within the basin. Additionally, the groundwater flow model will enable the managing agencies to evaluate pumping within the basin and identify areas where pumping may increase the risks of seawater intrusion.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

One of the key components of the groundwater model will include the evaluation of recharge of the groundwater basin from surface water bodies. A better understanding of the relationship between creek flows and groundwater levels help local agencies balance urban, agriculture and environmental water requirements.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

This primary purpose of this project is to improve groundwater management. The development of a groundwater flow model will enable the agencies within the SMGB to meet the following objectives: quantify groundwater yield and storage_ evaluate banking_recharge programs, update and improve groundwater monitoring plans_ prevent seawater intrusion_ etc.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Utilizing the updated understanding of the hydrology of the SMGB, agencies will be able to better coordinate and develop programs amongst a wide variety of stakeholders to improve water resources management.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

The groundwater model will encompass the area of the SMGB that underlies the community of Oceano, which is one of the critical sources of supply for this Disadvantaged Community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

One potential application of the groundwater model, would be to evaluate pumping within the basin from an efficiency perspective. This evaluation could identify more efficient areas within the basin for extracting groundwater and limiting pumping costs and greenhouse gas emissions.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

This project will include participation by the Oceano Community Services District and the Cities of Arroyo Grande, Grover Beach, Pismo Beach. Additionally, depending on ultimate extent of the groundwater model, it may include the Nipomo Mesa Management Area (NMMA) or the entirety of the SMGB, which

extends into Santa Barbara County. In either case, this project will require extensive coordination with the groundwater managing agencies within in the NMMA and the Santa Barbara IRWM Region.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this project is not implemented, the managing agencies within the SMGB will continue to rely upon the groundwater as their only or one of their primary source(s) of supply, while possessing limited understanding of the groundwater movement within the basin, the safe yield of the basin or the potential risk from seawater intrusion. Additionally, these agencies will not possess sufficient information to adequately evaluate the potential for groundwater storage_conjunctive use within the SMGB.

Other Comments:

See Canyon Watershed Management Plan

South County

Sponsoring Agency/Organization: **Central Coast Salmon Enhancement**

Contact Name: **Steph Wald**

Affiliation:

Address: **229 Stanley Ave.** Phone Number: **805-471-3789**

Email: **steph@centralcoastsalmon.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The See Canyon Watershed Management Plan will generate a water quality, water quantity and habitat protection plan for the See Canyon (San Miguelito) watershed, the most downstream triburary of the San Luis Obispo Creek watershed, and the most productive Steelhead trout tributary in the watershed. The project will assess existing watershed conditions and use a stakeholder driven approach to understand critical issues facing the watershed and vet recommendations for addressing those issues.

Describe Need for Project/Program (1 to 2 sentences):

See Canyon_San Miguelito Creek has not been the recipient of a focused watershed planning effort to date. Water resource protection is needed as development occurs that is protective of limited ground and surface water supplies.

Project Website (if any):

Subregion (See Map) **South County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **San Luis Bay Drive and See Canyon Road_**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Rural, agricultural and open space**

Watershed (if known) See Map: **San Luis Obispo**

Project Cost Range: **<$250K**

Project Cost (if known): **$125,000**

Source of Cost Estimate: **Agency**

Project Status: **Conceptual**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **California Department of Fish and Wildlife Fisheries Restoration Grant Program, State Coastal Conservancy Climate Ready Program**

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)?

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The project could identify recommendations for increases in water conservation.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project could identify recommendations for improvements to existing water supplies.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project will expand environmental and resource stewardship, ecosystem restoration, public education, endangered species restoration, invasive species reduction and stream flow management.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project could identify recommendations for improvements to groundwater management.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The project could identify recommendations for improvements to flood management.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education,

collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project would conduct public outreach and education for watershed landowners involving them in a collaborative process to consider critical watershed issues.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

The project would use the recently published (April, 2013) Water-Energy Toolkit for Sustainable Development to provide climate change resources to watershed landowners.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Partner with the Coastal San Luis RCD to leverage their existing program offerings to make available to landowners to implement BMPs, and permit streamlining potential through Partners in Restoration and Livestock and Land Programs. The City of San Luis Natural Resources Program is interested in protecting steelhead resources of this productive subwatershed and would particpate as a stakeholder. Many landowners were involved in the existing watershed group (see comments below) and would presumably become involved once a funding source is procured to continue a watershed planning process.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

As the See Canyon and Davis Canyon watersheds continue to develop, the existing water resources and ecosystem attributes may continue to decline without adequate landowner outreach and technical support for water quality_quantity protection.

Other Comments:

CCSE was asked to initiate a watershed group in See Canyon in 2005 by several watershed landowners when they became concerned that groundwater overdrafting might negatively impacting base flow and dewatering the creek. CCSE has conducted well attended watershed forums for landowners and residents in the intervening years. A steering committee of landowners led a nascent watershed planning effort with CCSE providing administrative support funded through small contributions from supportive landowners. Funding this proposal would allow for continuing the process and to produce a plan that would serve as a blueprint for watershed management.

SLO Communities Water Enhancement Program

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Central Coast Salmon Enhancement**

Contact Name: **Steph Wald**

Affiliation:

Address: **229 Stanley Ave., Arroyo Grande, CA 93420** Phone Number: **805-471-3789**

Email: **steph@centralcoastsalmon.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The SLO Communities Water Enhancement Program will augment decentralized water conservation and supply outcomes to leverage rainwater and grey water as a water supply source. It will include the following components: Rainwater catchment_harvesting rebate classes (water catchment systems for residential and rural users to include a class in order to be eligible to receive rebates), Slow It, Sink It, Spread It Campaign to reduce runoff, and increase infiltration, creation of LID Districts_Water Replenishing Districts, Community Curb Cut Program (inventory and implement residential curb cut program to reduce stormwater runoff and promote infiltration in appropriate places in urban and suburban communities) and planning_implementing winter runoff storage infrastructure to reduce or avoid pumping needs in summer for rural users.

Describe Need for Project/Program (1 to 2 sentences):

There is a need for a comprehensive county-wide program to provide education, outreach and technical support to implement programs to conserve rainwater in urban, rural and commerical_industrial land uses and increase groundwater basin recharge through grey water applications.

Project Website (if any):

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **County-wide**

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **potentially all land uses**

Watershed (if known) See Map: **potentially all watersheds**

Project Cost Range: **$250K-$500K**

Project Cost (if

known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **municipal participation, National Fish and Wildlife Foundation, RWQCB SEP funds**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This project will enhance groundwater storage, reduce storm water flows and use captured water for urban and rural outdoor water needs (including landscape, livestock watering and gardening.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Capturing and using rainwater for urban users reduces the need for increasing costly centralized water supplies. Capturing and using rainwater for rural users reduces the need for groundwater draw for landscape and livestock. Plumbing greywater systems for urban and rural users improves groundwater recharge.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Provision of technical information for catchment and storage for rural and commercial users would improve local, decentralized operation and contribute to water supply reliability.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Capturing rainwater reduces the potential for erosion and sedimentation events which in turn reduces NPS pollution to surface and groundwater.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Increasing the knowledge base of rainwater_grey water use in urban and rural settings expands environmental and resource stewardship by more closely associating the user with the resource. This program is oriented toward public education and recharge area protection through watershed education and would be offered as one of CCSE's watershed education programs for the public.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will include provision of information about how rainwater_grey water systems fit into the larger human water cycle protecting groundwater basins and reducing threats of overdraft. The project promotes local contributions to ground water management.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The LID Districts_Water Replenishing Districts and community curb-cut program contribute to reducing flood risks, improving LID

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The crux of the program is public outreach and education that can promote local control of water quality and quantity through a mix means of methods.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

All DACs would be included.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Partners include the Coastal San Luis RCD, the Upper Salinas-Las Tablas RCD, the California Conservation Corps, the SLO Steelhead Initiative (a collaboration of county-wide steelhead restoration groups), SLO Permaculture Guild, SLO Green Build, SLO Surfriders.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

There will continue to be a missed opportunity to increase water supply through low-cost and locally controlled, decentralized rainwater collections systems and increase groundwater recharge through low-cost and locally controlled, decentralized grey water systems. The LID district_water replenishing districts idea would not have an opportunity be further explored on a county-wide basis. Overall, water

inefficiencies will continue.

Other Comments:

Stormwater Rewards Rebate Program

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **Nicole Smith**

Affiliation: **Coastal San Luis Resource Conservation District**

Address: **645 Main Street, Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **nsmith@coastalrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Stormwater Rewards Program will provide rebates to urban landowners retrofitting their property with Low Impact Development practices that slow,spread, and sink stormwater runoff. Priority will be on highly impervious land uses.

Describe Need for Project/Program (1 to 2 sentences):

Stormwater management impacts our water supplies, water quality, flooding and creeks. Existing regulation addresses new development more than retrofiting existing development. The program would support implementation of practices as well as improving public understanding of stormwater.

Project Website (if any):

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **NA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **Multiple watersheds in the Coastal San Luis Resource Conservation District**

Project Cost Range: **$250K-$500K**

Project Cost (if known): **$300,000**

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of

permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

NA

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes, indirectly could improve water infiltration to groundwater supplies.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

LID Initiative, RWQCB and municipalities

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Stormwater management programs will continue with limited funds directed to address regulation only.

Other Comments:

Estimated project cost provided above is dependent on scale.

Streambank Stabilization & Restoration in Santa Rosa Creek

North Coast

Sponsoring Agency/Organization: **Upper-Salinas Las Tablas Resource Conservation District (US-LT RCD)**

Contact Name: **Laura Edwards**

Affiliation: **US-LT RCD**

Address: **65 S. Main St. Ste 107** Phone Number: **805-434-0396 x5**

Email: **laura@us.ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

Design and install bioengineered bank protection with Rock toe reinforcement along an unnamed tributary to Santa Rosa Creek to protect against steep erosion. Project is located on private property and supported in part by NRCS funding and tech assistance.

Describe Need for Project/Program (1 to 2 sentences):

Steelhead trout recovery for San Luis Obispo County has been identified as a priority by National Marine Fishery Service. This streambank stabilization project will prevent excessive erosion and sedimentation in creek and protect fish.

Project Website (if any):

http:__us-ltrcd.org_

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **9255 Santa Rosa Creek Rd, Cambria CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agricultural**

Watershed (if known) See Map: **Santa Rosa Creek**

Project Cost Range: **<$250K**

Project Cost (if known): **$50,000**

Source of Cost Estimate: **Engineer**

Project Status: **Ready for Implementation**

Describe status of permitting: **Permits are in place**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Underway

Estimated ProjectStart Date: **9/1/2013**

Estimated ProjectEnd Date: **9/1/2014**

Identify proposed funding sources: **NRCS, Landowner and additionals**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

No

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

No

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Prevent extreme sedimentation due to streambank stabilization as end result

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Ecosystem benefits include improved and expanded wildlife habitat, additional vegetation, improved steady flow

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Streambank and floodplain restoration

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

NRCS is already working with client and has engineered plans plus permits. Landowner has run out of money and requested RCD assistance.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Ag road location to this property is aligned with Santa Rosa Creek and its design dates back to early part of 20th century. Culvert and road alignment demonstrate negative impacts to creek environments. Steep drainage is causing 237 acres to flow at high velocity toward 72' culvert at 45 degree angle. Bank 7 has been undercut and eroded with large trees slipping into stream.

Other Comments:

N_A

Supplemental Water Supplies for Paso Robles Groundwater Basin

North County

Sponsoring Agency/Organization: **Various**

Contact Name: **Courtney Howard**

Affiliation: **County of San Luis Obispo**

Address: **County Government Center, Rm 207, San Luis Obispo, CA 93408**

Phone Number: **(805) 781-1016**

Email: **choward@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Consistent with the adopted Paso Robles Groundwater Basin Management Plan (March 2011) implementation strategies, this project would seek supplemental water supply sources to address the declining groundwater levels and to meet future water demand projections. This project would require feasibility studies, permitting, design, and implementation of some combination of the following supplemental water supply sources: Nacimiento Water, State Water, recycled water, and Salinas River, but may also consider exchanges, new off_on stream storage, basin creeks, desalination and precipitation enhancement. It may also require construction of distribution infrastructure in geographically specific areas.

Describe Need for Project/Program (1 to 2 sentences):

The Resource Capacity Study prepared by the San Luis Obispo County Planning Department in November 2010 states that the Basin is near or at perennial yield – placing the basin at the most severe_ critical planning designation – and monitoring wells in the Paso Robles Groundwater Basin near the City of Paso Robles show continuous declining elevations indicating insufficient groundwater recharge to sustain current annual average pumping. Parts of the basin have experienced declining groundwater levels in excess of 70 feet over a relatively short period of time: 1997-2009, and those levels continue to drop.

Project Website (if any):

http:__www.slocountywater.org_site_Water%20Resources_Water%20Forum_

Subregion (See Map) **North County**

If Regional, please indicate which Subregions: **N_A**

Nearest Cross Street or Street Address: **N_A**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Various**

Watershed (if known) See Map: **Various**

Project Cost Range: **>$5M**

Project Cost (if

known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **None**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

None

Estimated ProjectStart Date: **1/1/2014**

Estimated ProjectEnd Date: **1/1/2024**

Identify proposed funding sources: **Assessments, fees, water rates**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. The feasibility studies would determine the best alternatives for providing supplemental water supplies to offset the declining groundwater levels in the Paso Robles Groundwater Basin, which could then move into the design, permitting and implementation phases. This could include utilizing some portion of the 6,095 AFY of unsubscribed Nacimiento Water or 15,273 AFY of the District's State Water excess allocation or developing recycled water sources for basin use or management of Salinas River use.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. Pending feasibility studies this may include treatment and development of recycled water to offset groundwater use or recharge the groundwater basin via recharge_ injection.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. The supplemental water would diversify basin users' supply portfolio, improving drought preparedness especially for communities solely dependent on groundwater. For instance, when available a supplemental source could be used in lieu of groundwater, and vice versa, allowing flexibility in water supply management.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. As groundwater levels decline, the basin becomes more susceptible to general water quality degradation, including issues related to the increased geothermal activity noted in a recent USGS study. Providing additional water supplies to offset groundwater use will help to reduce this water quality

degradation.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. Over the last decade, riparian habitat has been decreasing along basin creeks and river systems as the groundwater levels continue to decline. General stabilization of groundwater elevations will allow the creeks and rivers to maintain a live stream for longer periods of time, allowing the riparian habitat health to improve. Also, pending feasibility studies, supplemental sources may include reoperating the river systems and dams in order to manage and increase the duration of live stream in basin waterways.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The objective of developing a supplemental water supply portfolio would be to improve Paso Robles Groundwater Basin management. New water sources are needed as demand is at or near the basin's 97,700 AFY perennial yield, providing the threat of basin overdraft. Without new water supplies the groundwater basin levels will continue to decline.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. Pending feasibility studies, this may include management of storm flows to allow increased recharge to the basin and prolonged live streams in basin waterways.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. This program could help to instill a collaborative approach to water management between the rural, urban, and agricultural user sectors by developing new shared water supplies.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. San Miguel, a State-defined disadvantaged community, overlies the Paso Robles Groundwater Basin and is solely dependent on it for the community's water supply.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Climate change models project increased high intensity storms and extended periods of lower rainfall and_or droughts. Pending feasibility studies, this water supply portfolio may include projects to manage surface water flows (e.g. bladder dams along waterways), providing a steady state of flow to local waterways, therefore increasing basin recharge and descreasing the negative effects of climate change by allowing the water to remain in the basin for later use.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Partnerships may be necessary depending on who benefits from the implementation of new water supply sources. Implementation of new supplies will likely involve various users of the Paso Robles Groundwater Basin, as well as a potential inter-regional effort with Monterey County, as a portion of the basin is within their jurisdictional boundaries.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If groundwater management activities are not implemented, priority groundwater basins will continue to see the current (if not worsening) water quality issues, declining levels, and other issues with overall basin management.

Other Comments:

This may evolve into mulltiple projects, after feasibility studies and intial planning efforts are completed. The project cost is left blank as too many detailed are unknown to accurately estimate the cost to implement a project or water supply portfolio projects. A refined cost estimate will be provided once the selected water supply portfolio is selected.

Templeton CSD East Side Force Main and Lift Station Project

North County

Sponsoring Agency/Organization: **Templeton CSD**

Contact Name: **Tina Mayer**

Affiliation: **Templeton CSD**

Address: **420 Crocker Street, PO Box 780, Templeton, CA 93465** Phone Number: **(805) 434-4900**

Email: **tlm@templetoncsd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

Return increased volume of treated wastewater to percolate into the underflow of the Salinas River for subsequent retrieval by municipal wells downstream. This alternate use will provide new water to supplement existing supplies and allow for better water management practices in the Atascadero Basin.

Describe Need for Project/Program (1 to 2 sentences):

The project will create additional water supply availablility for municipal purposes and offset extractions from deep goundwater wells in the Atascadero Basin. By improving groundwater levels for beneficial uses the project will provide basin-wide environmental, health and safety benefits and improve the overall water supply to the Community of Templeton..

Project Website (if any):

The project will be on the TCSD website when it is under construction.

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **East Side Wastewater Collection area to Volpi Ysabel**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map:

Project Cost Range: **>$5M**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Design Phase**

Describe status of permitting: **Permitting underway, est. March 2014**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA completed. MND complete May 23, 2012

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Looking for construction only - Loan and _ or Grant Funding to supplement local TCSD funding sources.**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The Project provides for water conservation, groundwater storage and improved water use efficiency. An increased volume of treated wastewater will be available for beneficial use directly through recapture by downstream municipal wells. This water will be used to offset water from the deep groundwater aquifer in the Atascadero Basin. Use of this supplemental supply will protect the basin health.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

This project will improve the sustainablity of water supplies for the Community of Templeton and its neighbors in the Atascadero Basin.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

This project will improve water supply reliability by treating all wastewater generated within the District and discharging it within the District for retrieval by downstream municipal wells. The Eastside Wastewater area flows are currently treated by the Paso Robles WWTP and treated wastewater is surface discharged into the Salinas River where it is not retrievable.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The project provides matching water quality for municipal uses through an extensive biological treatment and percolation process.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project provides for environmental benefits and public education benefits in providing an opportunity to demonstrate the reuse of treated wastewater for beneficial uses.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats

of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

This water supply project will be used to better manage water use from the deep groundwater aquifer in the Atascadero Basin. The project will assist in mitigating any future potential for overdraft of the Atascadero Basin by providing a reliable supplemental water supply that can be counted on even during drought periods.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

N_A

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The project improves water resource management by maximizing the efficient use of all water resources under the local control of the TCSD.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

N_A

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

By maximizing the efficient use of all local water supplies the project addresses climate change concerns related to potential drier water supply conditions.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the project is not implemented the TCSD may lose local control of a water supply that will benefit the Atascadero Basin. An opportunity to improve water efficiency will be lost along with the environmental and community benefits.

Other Comments:

Toad Creek flood control, restoration and basin re-charge

North County

Sponsoring Agency/Organization: **Upper Salinas-Las Tablas Resource Conservation District**

Contact Name: **Laura Edwards**

Affiliation: **US-LT RCD**

Address: **65 S. Main Street, Suite 107** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Manage Toad Creek flooding in Templeton by constructing a shallow unfenced retention _detention basin in the flood hazard zone, restore the original creek alignment, restore habitat to encourage the return of steelhead trout, and re-charge the Atascadero sub-basin. Inflow to the basin is Toad Creek plus two unnamed tributaries. Outflow is under the Union Pacific Railroad trestle. After which, Toad Creek flows into the Salinas River.

Describe Need for Project/Program (1 to 2 sentences):

The SLOCFC&WC District contracted with North Coast Engineering to perform a Templeton Drainage and Flood Control Study draft dated February 2011_ an Addendum was later prepared in August 2012. The Templeton community preferred a modified version of Project 8 as described in the TAAG Toad Creek Watershed Report approved February 21, 2013. TCSD supplies drinking water from the Atascadero sub-basin.

Project Website (if any):

None

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Main Street and Highway 101**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Commercial Retail**

Watershed (if known) See Map: **Salinas River**

Project Cost Range: **$500K-$1M**

Project Cost (if known):

Source of Cost Estimate: **Other**

Project Status: **Ready for Implementation**

Describe status of permitting: **No permits have been obtained**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

CEQA compliance has not been completed

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes, the Atascadero sub-basin is replenished by rainwater. A stormwater management basin located over the sub-basin will recharge the aquifer.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. Capturing stormwater runoff for percolation into the aquifer has a sustainability benefit that would be realized by TCSD customers.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. Capturing stormwater to re-charge the Atascadero sub-basin, rather than letting this water flow into the Salinas River, will benefit 7000 TCSD residents.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. Under a state water agreement the TCSD is required to draw groundwater from the Atascadero sub-basin during the summer months. A basin will also facilitate local management of sediment.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The basin lies primarily within the Toad Creek FHZ. The project includes riparian restoration as specified in Templeton Area Standards. Man altered the original watercourse. When returned to its earlier path the velocity of stormwater will be reduced. Restoration will encourage the return of steelhead trout.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats

of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Yes. The Atascadero sub-basin is replenished by rainwater. Capturing runoff for percolation to the basin will benefit the TCSD who by law is required to draw groundwater from the basin during the summer months.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Yes. The Templeton Drainage and Flood Control Study draft Addendum prepared by North Coast Engineering is the community preferred alternative. Hydrological analysis for Project 8 is completed. This report does not include stream _floodplain restoration.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. Stated above. Public outreach and education was part of the TAAG Toad Creek committee activity (April 2011 - February 2013). The committee drafted the Toad Creek Watershed Report that was approved by TAAG. Continued community involvement is key to the success of this project.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Retaining beneficial use of stormwater runoff by recharging an aquifer is a water conservation tool. For several years rainfall has been well below average. Water management and water quality everywhere in the county is a critical issue related to climate change.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The partnership agencies are US-LT RCD, SLOCFC&WC District, TCSD, and CA Fish & Wildlife. The community stakeholder is TAAG. Additional partners may be County Parks or TCSD Parks if dual use of the stormwater basin could be achieved.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

The Toad Creek watershed is approximately 8 square miles. The need for flood control management was identified along with alternative solutions. Project 8, a continuous shallow unfenced basin, is the preferred project by the Templeton community. This project needs to be incorporated into the SLOCFC&WC District capital improvement project list so that it can be prioritized for funding.

Other Comments:

In addition to stormwater basin alternatives the contracted study identified 5 sediment removal projects on private property and 4 road crossings _culvert deficiencies. The basin should be operational before other upstream sediment and road improvements are undertaken. If not executed in this order, downtown flooding would likely be significantly increased. Guide for Implementing Flood Control Projects 2009 states "All the communities within the unincorporated areas of San Luis Obispo County to some extent lack formal drainage systems." In Templeton according to the Guide, flooding has increased in the downtown areas dramatically due to increased development and runoff from the westside of town.

Toad Creek Waterway Management Program

Sponsoring Agency/Organization: **SLO County Flood Control and Water Conservation District**

Contact Name: **Jill Ogren, PE**

Affiliation: **San Luis Obispo County Public Works**

Address: **County Government Center, Room 206, San Luis Obispo, CA 93408**

Phone Number: **805.781.5263**

Email: **jogren@co.slo.ca.us**

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Provide a Brief Project/Program Description (1 to 2 sentences):

Develop a Waterway Management Program (WMP) for Toad Creek in the community of Templeton in order to reduce the frequency of flooding and prevent continued flood damage to adjacent public and private properties caused by deficient drainage facilities. The Toad Creek WMP will 1) prioritize flooding problems caused by deficient drainage facilities and inadequate creek channel capacity, 2) establish a framework for how Toad Creek, its tributaries, and other appurtenant public drainage facilities will be managed, long-term, to meet the flood control goals established by the District and the community. The WMP will be developed with a compehensive perspective and will include a combination of capital improvement projects and long-term maintenance activities, active restoration and enhancement projects, as well as mitigation measures in order to ensure that its approach to flood management will provide flood protection while simultaneously providing benefits to the environment.

Describe Need for Project/Program (1 to 2 sentences):

There are existing flooding problems in Templeton. A comprehensive drainage plan is necessary to identify community priorities and guide future planning efforts, especially since Templeton has a high potential for additional development to occur.

Project Website (if any):

Subregion (See Map)

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **Templeton, CA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Agriculture, rural residential, residential, commercial**

Watershed (if known) See Map:

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting: **NA**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **funding sources are currently being pursued**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Ecosystem restoration. The project could propose management practices to promote_enhance riparian vegetation, bank stabilization, and stream shading benefiting ecosystem restoration, water quality, flood protection and aesthetics.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The proposed WMP will aim to develop a comprehensive set of actions to reduce flooding of Toad Creek and its tributaries in the community of Templeton, while also enhancing the environment. Actions are anticipated to include: increasing existing culverts, constructing_upsizing detention basins to collect and filter pollutants as well as reduce flow runoff volumes and velocities, managing in-channel vegetation to

enhance habitat and reduce flow restrictions, reducing sediment deposition within the channel, as well as implementing specific sediment removal projects.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

Program would be developed with stakeholder input including Templeton CSD and the Templeton Area Advisory Group (TAAG).

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Frequent and shallow flooding occurs at several locations in the community of Templeton along Toad Creek A comprehensive drainage plan will assist the District in implementing viable solutions for improving flood protection for the community as well as guide future planning efforts. Without a comprehensive plan, the District will not be effective at seeking funding to implement improvements and will not have the information resources to address future needs as development of the community increases_occurrs.

Other Comments:

Preliminary phases of a Templeton Drainage Study have been completed which involved the review of existing drainage infrastructure, identification of deficient drainage facilities, determination of hydrology fo the study area, hydraulic analyses of major drainage facilities, identification of causes of deficiencies, and identification of potential solutions for deficient drainage.

Upper Salinas watershed plans

North County

Sponsoring Agency/Organization: **US-LT RCD**

Contact Name: **Laura Edwards**

Affiliation: **US-LT RCD**

Address: **65 S. Main Street Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

Develop watershed management plans for watersheds in the Upper Salinas region where water supplies are stressed and steelhead habitat is declining to determine implementation strategies for increasing watershed health, reversing climate change impacts, and increasing groundwater basin recharge for the Paso Robles groundwater basin and other localized sub-basins.

Describe Need for Project/Program (1 to 2 sentences):

The upper Salinas watersheds are the headwaters for the Salinas River. Developing focused strategies for restoring watershed health will improve water quantity and quality and increase groundwater recharge into the Paso Robles groundwater basin which is currently in overdraft and under a level III severity rating.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map: **Big Creek, San Simeon, Cambria, Cayucos**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Ready for Implementation**

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The proposed watershed management plan will provide concrete targeted recommendations to increase groundwater recharge, provide stormwater management strategies, provide locations for efficient and effective infiltration, and address water use efficiency for area land uses.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The proposed watershed management plan will provide recommendations specific to the region related to access to water rights and existing water supplies, water supply management, water quality, and sustainability of Ag, rural, and urban water supplies.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The Watershed plan will identify implementation strategies for improving water quality including improving groundwater conditions and providing recommendations to reduce pollutant loads, including those flowing into the Salinas River, which eventually outfalls into the Monterey Bay National Marine Sanctuary via Monterey County.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The project will expand environmental stewardship and provide recommendations to ensuring that each watershed ecosystem is restored. The plan would identify key infiltration zones for targeted protection strategies and provide direction for land use management of existing Agricultural, rural, and urban land uses. In addition, the plan would provide details for in stream flow management, invasive species reduction and increasing habitat conditions for steelhead trout survival and migration.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

The project will provide a more detailed analysis of the existing groundwater basins and provide basin and water supply management strategies.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

The proposed plan will provide specific targeted areas for LID implementation, watershed and flood management, and stream restoration.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The watershed plan will have a public outreach and education component in addition to providing recommendations for collaborative programs between agricultural and urban landowners.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No disadvantaged communities are located within the scope of the project boundaries however, the Salinas river flows to San Miguel, and addressing water quantity and quality issues upstream will have [positive affects downstream.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

The proposed plan will address impacts related to climate change throughout the watersheds of the North County and provide recommendations for reversing climate change impacts, including strategies for decreasing water temperature, increasing riparian vegetation, and increasing carbon sequestering.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Lack of knowledge about local watersheds results in management efforts that do not fully maximize conservation ad restoration efforts. Understanding how watersheds and water flows effect recharge of the Paso Robles groundwater basin will allow decision makers to make informed decisions about options for enhancing groundwater recharge and enhancement options as part of a holistic management strategy.

Other Comments:

Urban Landscape Water Management and Conservation Program

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **Coastal San Luis Resource Conservation District**

Contact Name: **G.W. Bates**

Affiliation: **Coastal San Luis Resource Conservation District**

Address: **645 Main Street, Suite F, Morro Bay, CA 93442** Phone Number: **805-772-4391**

Email: **gbates@coastalRCD.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

This project is designed to provide education, training, technical support, and capital funding to improve landscape irrigation water management in the County. Funds will be used to evaluate city and county parks, school district fields and large commercial landscapes for water use efficiency. The funds will also be used to provide equipment upgrades and train managers on proper irrigation scheduling. The project will include the following components:

1. Turf and landscape water audits.

2. Equipment upgrades to control systems to incorporate moisture sensors and improved scheduling.

3. Sprinkler upgrades to improve Distribution Uniformity.

4. Conversion of turf areas to lower water use plants.

5. Training for agency staff on proper maintenance and irrigation scheduling to improve water use efficiency.

Describe Need for Project/Program (1 to 2 sentences):

Urban parks consume larger amounts of water and traditionally have poor water use efficiencies. Agency staff often lack the proper training to mange these systems effectively. This results in over irrigation due to poor timing and a lack of understanding about system performance. Significant water savings can be achieved through proper operation, improved equipment and turf reduction.

Project Website (if any):

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Urban**

Watershed (if known) See Map: **County Wide**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Ready for Implementation**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

NA

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **In kind match from cities and districts.**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes. The proposed project will improve agricultural water use efficiency by helping to provide modern tools and methods for landscape irrigation water management.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes. The proposed project will help agencies save water and move towards sustainability.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Yes. This project will improve operational efficiencies for landscape irrigation systems by helping to provide structural improvements to existing systems. By increasing irrigation water use efficiency the project will also improve drought preparedness.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Yes. This project will reduce non-point source contaminants to surface and ground water by reducing excess leaching and runoff.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Yes. The goal of this project is to improve water use efficiencies by increasing the percentage of applied irrigation water that contributes to beneficial use. This will reduce the amount of 'excess' or 'non-beneficial' irrigation water pumped which will reduce the opportunity for pollution, and reduce the amount of polluted runoff entering local ecosystems.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

No.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes. A major component of this project is education, outreach and training for landscape water management.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes. This project will improve irrigation water management throughout the County. This includes any disadvantaged communities where irrigated landscape is present.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

Yes. Improved irrigation efficiencies will reduce energy used for pumping. This in turn will reduce greenhouse gas emissions.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

This project will involve partnerships throughout the County. The Coastal San Luis Resource Conservation district will partner with the Upper Salinas - Las Tablas Resource Conservation District and any cities, community services districts and school districts wishing to improve water use efficiency.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Failure to implement landscape water management and conservation efforts will result in continued inefficient water use in outdoor areas throughout the County.

Other Comments:

Vertical Well Project for HRCSD

North County

Sponsoring Agency/Organization: **Heritage Ranch Community Services District**

Contact Name: **John D'Ornellas**

Affiliation: **Heritage Ranch Community Services District**

Address: **4870 Heritage Road, Paso Robles, CA 93446** Phone Number: **805-227-6230**

Email: **john@heritageranchcsd.com**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **No**

Provide a Brief Project/Program Description (1 to 2 sentences):

HRCSD's sole water supply is from their three Gallery Wells located in Nacimiento River, which draw water from the surface stream through the natural soil and engineered media. The proposed project will install two vertical wells near the Nacimiento River, just outside of the primary streambed near the existing Gallery Wells and Water Treatment Plant, to provide additional water supply from the underflow of the Nacimiento River and Lake.

Describe Need for Project/Program (1 to 2 sentences):

The Gallery Wells, as noted previously are the District's only water supply source for 1,800 connections, including 3,500 residents, a public school, and a small commercial center, and are highly susceptible to drought conditions (low flow releases or no flow releases over the Nacimiento Dam) and high flood conditions (high flow releases over the dam under high rain events >3,000 cfs). The Vertical Well Project will provide the District with an alternate water supply source that is not solely dependent on the flow releases from the Dam and has higher protection from flood conditions, thus providing more redundancy and reliability to the District's water supply source.

Project Website (if any):

N_A

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **See Project Street Address Above**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **Residential Rural**

Watershed (if known) See Map: **Nacimiento (10)**

Project Cost Range: **$250K-$500K**

Project Cost (if known):

Source of Cost Estimate: **Engineer**

Project Status: **Planning Phase**

Describe status of permitting: **The District has not obtained any permits. The Project would require permits from the County and the Department of Public Health**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

The District will undertake the environmental review and preparation of the Negative Declaration or Exemption. Date TBD

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **District has already funded through their water fund the preliminary engineering to identify feasibility and suitable well locations**

What is the Percent Range of Matching Funds? **<10%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

The Project will allow access to existing water allocation of the Nacimiento Water during periods of low flow (below dead pool when flow can no longer be released over the dam) and assist the District in maintaining a water supply if their Gallery Wells are washed out due to high flood releases over the dam, which occurred in the recent past.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

The project will provide the District with a redundant and more reliable water supply by allowing the District to access their water allocation from multiple sources in lieu of their current single source, the Gallery Wells, thus providing more security to the 1,800 water connections currently being served by the District.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Under low flow conditions (<20 cfs releases over the dam), the District's Gallery Wells continuously pause due to lack of availability of water flowing over the wells. The vertical wells would allow the operators to access the abundant underflow of the river to obtain the water needed to meet daily demands. The vertical wells provide a higher reliability to the District's water supply by providing an alternate water supply during drought and_or flood conditions.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The Gallery Wells are susceptible to high raw water turbidity levels of Lake Nacimiento. Under certain conditions water turbidity is significant and can exceed over 100 NTU. The Surface Water Treatment Rules for the District's WTP requires the effluent water turbidity levels to be less than or equal to 0.3 NTU in 95% of the measurements per month. High raw water turbidity is extremely difficult for the District to treat,

requiring the District to continuously back flush their filters at the WTP and the Gallery Wells, which ultimately wastes water and reduces the production water available. The installation of the vertical wells would provide the District with an alternate water supply that would have a lower raw water turbidity due to the natural filtering that occurs with the underflow water. Therefore, under raw water high turbidity times in the Nacimiento River, the District can utilize the Vertical Wells to provide their water supply.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

Current maintenance of the Gallery Wells requires construction work within the Nacimiento River including dewatering of the work zone if repairs are needed to maintain the current facilities to maintain adequate water production. This project will reduce or eliminate the need to work within the Nacimiento River by allowing a blending of both Gallery Well and Vertical Well water.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

No

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

This project will not improve flood management. However, this project will make the District less susceptible to the flooding if and_or when Monterey County Water Resources Agency determines to release high flows over the dam.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

No

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

No

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

No

If yes or maybe, please explain:

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If this project is not implemented, the District is susceptible to no water supply under either drought conditions or under flooding conditions.

Other Comments:

The District has evaluated numerous alternative options to provide a more reliable water supply to the 1,800 customers at Heritage Ranch. Groundwater wells, outside of the Nacimiento River do not provide enough water to supply the customer's needs.

Water Conservation Corps

Regional (2 or 3 Sub-Regions)

Sponsoring Agency/Organization: **California Conservation Corps (CCC) - San Luis Obispo Center _ (Other Partners TBD)**

Contact Name: **Jody Weseman**

Affiliation: **Program Manager - CCC Watershed Stewards Project**

Address: **1527 Madera Ave, San Luis Obispo, CA** Phone Number: **805-542-8461**

Email: **Jody.Weseman@ccc.ca.gov**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Water Conservation Corps (WCC) would provide skilled laborers, community outreach, and education to SLO County stakeholders. Participants in the program would be trained in the concepts and instillation techniques of greywater plumbing, rainwater gardening, water catchment systems and stormwater mitigation. The WCC crews would implement needed water conservation projects and participate in community outreach_education events.

Describe Need for Project/Program (1 to 2 sentences):

The WCC would provide SLO County Departments, State Parks, and community organizations the means to reduce their water consumption and carbon footprint. Community outreach about droubt resistant landscaping, water conservation techniques, and watershed protection will improve the communities' understanding of SLO County's water insecurities.

Project Website (if any):

ccc.ca.gov_go_wsp (This is the website to a similar project of the California Conservation Corps.)

Subregion (See Map) **Regional (2 or 3 Sub-Regions)**

If Regional, please indicate which Subregions: **NA**

Nearest Cross Street or Street Address: **NA**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **All land use that will benefit the public (urban, rural residential, commercial, ag, low-income residential, homeless shelters, etc…)**

Watershed (if known) See Map: **All watersheds within SLO County**

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Conceptual**

Describe status of permitting:

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **9/1/2014**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources: **Reimbursement for projects installed, CCC Scholarships for WCC members, CCC as Fiscal Agent**

What is the Percent Range of Matching Funds? **26%-50%**

Does Project Serve a Disadvantaged Community (DAC)? **Oceano**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

WCC would work with community partners to increase water conservation and mitigate stormwater by installing rain gardens, greywater systems, and water catchment systems..

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Educating the public about stormwater responsibilities, native endangered and threatened watershed species, and simple conservation techniques will aid in the County's mission to improve water quality and supply management. Green infrastructure and low impact development techniques are cost-effective, sustainable, and environmentally friendly approaches that help manage water and water pollutants at the source, preventing or reducing the impact of infrastructure and development on water and water quality.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

The WCC program would address water supply reliability by specializing in water catchment system installation_ grey water education and instillation_ rain garden education and instillation_ and implementing 'green street' initiatives.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Implementation of effective stormwater management measures result in the following benefits: -Increasing uplands water infiltration and retention capacity improve water security by recharging groundwater aquifers, while increasing base flows in streams and reducing mortality in endangered fish populations.-Slowing down stormwater runoff will decrease topsoil loss, erosion, flooding and stream flow variance by reducing the volume and rate of peak flow events.-Removing pollutants in runoff will improve water quality in streams and aquifers.-Reducing the delivery

of erosion products to streams will increase flows by keeping pools and riffles free of excessive sedimentation.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The WCC will expand watershed stewardship within the CCC and SLO community by creating community outreach events where local volunteers and WCC members will implement watershed restoration projects. Activities will include but are not limited to: fish passage barrier removal, creek clean-ups, invasive removal, native plantings, etc...

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

WCC will incorporate SLO County Water Protection Plan information in all outreach literature. Members will be versed in the current state of the groundwater basin and threats of overdraft. Members will engage in needed water quality and quantity testing to verify effectiveness of projects.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Rain gardens and 'green streets' work to improve flood management as they 'plant water' by providing a permeable service to collect storm runoff and filter stormwater pollutants.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

WCC members would perform community outreach by hosting information booths at local fairs (Coastal Discovery Fair, Lopez Lake Outdoor Discovery Festival, Farmers Markets) and by teaching stewardship in Title One schools, local homeless shelters, and within the CCC community. WCC members would help to educate the public about the importance of groundwater recharge and preservation, the true cost of pumping water and how it ties to Climate Change, and the importance of biodiversity in our watersheds.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

WCC would provide educational materials in Spanish and focus outreach efforts to low-income families, homeless shelters, and Title One Schools.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

The carbon footprint currently associated with moving, treating and heating water in the U.S. is at least 290 million metric tons a year. The CO2 embedded in the nation's water represents 5% of all U.S. carbon emissions and is equivalent to the emissions of over 62 coal fired power plants (River Network Report). WCC would provide SLO County the means to address Climate Change with cost effective green infrastructure.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

The WCC would partner with the SLO California Conservation Corps so WCC members would be provided health care, housing, and an opportunity to earn a $5,500 scholarship.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

If the WCC is not funded by IRWM the program will not exist.

Other Comments:

The California Conservation Corp's support for the WCC program is contingent on the identification of additional partners to act as the fiscal agent (bid projects, purchase materials, provide heavy equiptment,etc…).

Water Conservation Partnerships in Chorro Valley

North Coast

Sponsoring Agency/Organization: **Morro Bay National Estuary Program**

Contact Name: **Adrienne Harris**

Affiliation: **Morro Bay National Estuary Program**

Address: **601 Embarcadero, Suite 11_ Morro Bay, CA 93442** Phone Number: **(805)772-3834**

Email: **aharris@mbnep.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Yes**

Provide a Brief Project/Program Description (1 to 2 sentences):

The Water Conservation Partnership in Chorro Valley will help protect creek and groundwater resources in the Chorro Valley. The Estuary Program and its partners will work with landowners on rainwater harvesting, winter water storage, water rights alterations, and other conservation practices to protect stream flow during the dry months of the year.

Describe Need for Project/Program (1 to 2 sentences):

The Chorro Creek Watershed is important steelhead trout habitat. Low flow in the summer is one of the most important limiting factors to the species recovery in the area. In addition, creek flow and groundwater availability are connected in this drainage_ each greatly impacting the other.

Project Website (if any):

n_a

Subregion (See Map) **North Coast**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address: **along highway 1 between SLO and Morro Bay**

Land Use (e.g., urban, ag, rural residential etc.) See Map: **agriculture**

Watershed (if known) See Map: **Morro Bay**

Project Cost Range: **$1M-$5M**

Project Cost (if known):

Source of Cost Estimate: **Agency**

Project Status: **Planning Phase**

Describe status of permitting: **unsecured**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

Estimated ProjectStart Date: **1/1/2015**

Estimated ProjectEnd Date: **1/1/2017**

Identify proposed funding sources: **NOAA, MBNEP, Trout Unlimited,California Department of Fish and Wildlife**

What is the Percent Range of Matching Funds? **11%-25%**

Does Project Serve a Disadvantaged Community (DAC)? **None**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

This project will aid in reservoir storage, water use efficieny, and stormwater management. Capturing water in the winter when water is plentiful to be used when water is scarce helps elliviate problems during times of scarcity. In addition, capturing some winter flow helps with stormwater mangement, improving water quality and reducing the risk of flooding.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

During the project, one option landowners might choose is to alter exisiting water rights, helping alliviate conflicts during times of scarcity. In addition, capturing some winter flow helps with stormwater mangement, improving water quality and reducing the risk of flooding.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

Storing water when it is plentiful to use when it is scarce helps improve reliability. Systems can be built to provide a certain amount of water depending on the level of rain.

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

Currently the Morro Bay watershed is a 303d listed watershed impaired by sediment, nutrients, and bacteria. This project will help manage stormwater from some facilities, aiding in water quality protection.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species restoration, invasive species reductio

The federally listed Southern steelhead (Oncorhynchus mykiss irideus) uses the Chorro Watershed to spawn and rear. Currently creek flow is one of the most important limiting factor to its recovery.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Storing water during the winter helps protect shallow groundwater resources during the summer.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Managing stormwater runoff helps reduce the threat of flooding.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

Yes, this program helps landowners learn about water management at the watershed-scale.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Morro Bay is not listed as a disadvantaged community.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

With a changing climate, periods of drought and severe storm events may become more prevalent. Capturing winter water will help with water reliability during dry months and help with flooding during severe storm events.

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Yes

If yes or maybe, please explain:

Trout Unlimited, CEMAR, MBNEP, California Conservation Corps., NOAA, CA Department of Fish and Wildllife

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Currently, Chorro Valley is fully appropriated. As evidence by this dry summer, water will become increasingly scarce in Chorro Valley, creeks will dry up, leaving steelhead trout stranded and vunerable.

Other Comments:

N_A

Water-wise program (with target applied irrigation rates)

North County

Sponsoring Agency/Organization: **US-LT RCD**

Contact Name: **Laura Edwards**

Affiliation: **US-LT RCD**

Address: **65 S. Main Street Suite 107, Templeton, CA 93465** Phone Number: **805-434-0396 x 5**

Email: **laura@us-ltrcd.org**

Will this project involve partnerships with other agencies or a neighboring IRWM region? **Maybe**

Provide a Brief Project/Program Description (1 to 2 sentences):

Water audit program provided in concert with the US-LT RCD to assist landowners in achieving water efficiency. The proposal also includes determining target applied irrigation rates based on microclimate conditions for all crops grown in the County to determine whether or not ag users are as efficient with their water use as possible. The program would provide technical assistance from various local experts to help farmers and ranchers achieve maximum efficiency in their irrigated water use.

Describe Need for Project/Program (1 to 2 sentences):

The Paso Groundwater basin is in overdraft and has been listed as a level III severity rating. Agricultural uses must focus their water conservation efforts to ensure that maximum water savings are achieved while providing adequate irrigation for crops and rangeland to provide business sustainability. Developing target applied irrigation rates fro all crops in the County based on specific localized microclimates will provide a baseline goal for agricultural and owners ensuring the balance between water conservation needs and economic vitality.

Project Website (if any):

Subregion (See Map) **North County**

If Regional, please indicate which Subregions:

Nearest Cross Street or Street Address:

Land Use (e.g., urban, ag, rural residential etc.) See Map:

Watershed (if known) See Map: **Paso Groundwater basin focused wit possibility to expand program count-wide in the future**

Project Cost Range: **<$250K**

Project Cost (if known):

Source of Cost Estimate:

Project Status: **Ready for**

Implementation

Describe status of permitting: **n_a**

Describe status of permitting and CEQA/NEPA compliance (include est. date of completion):

n_a

Estimated ProjectStart Date: **1/1/1900**

Estimated ProjectEnd Date: **1/1/1900**

Identify proposed funding sources:

What is the Percent Range of Matching Funds?

Does Project Serve a Disadvantaged Community (DAC)? **San Miguel**

Does the Project/Program increase water conservation or bring new water supplies for beneficial use (e.g., groundwater storage, water recycling, reservoir storage, desalinization, water use efficiency, stormwater management, etc.)?

Yes - technical assistance will include property specific soil testing, site analysis, irrigation system analysis, etc and provide specific recommendations focused on water conservation and groundwater recharge efforts.

Does the Project/Program include improvements to existing water supplies (e.g., maximize accessibility to existing water rights, improve existing water quality, water supply management, sustainability of supplies for ag, rural and urban uses)?

Yes - the proposed project includes targeted recommendations and implementation assistance for water conservation methods and increased groundwater recharge improvements which will maximize accessibility to existing water rights, improvements to water quality and quantity, water supply management, and supply sustainability. Determining target applied irrigation rates will inform agriculturists of what water use is required to maintain crops while conserving maximum amounts for future use and groundwater recharge.

Does the Project/Program improve water system operational efficiencies or water supply reliability (e.g., conveyance facility sizing, system reoperation, drought preparedness, water transfers, etc.)?

No

Does the Project/Program improve water quality, matching water quality to the type of water use (e.g., improving groundwater conditions to improve water quality for agricultural water supplies, reduce or prevent point or non-point source contaminants to

The proposal will improve groundwater conditions by assisting landowners maintain groundwater basing resources and increasing recharge capabilities. Recommendations will also focus on implementation of LID installations to reduce run-off, retention of on-site flows for irrigation use and groundwater recharge, and natural filtration methods.

Does the Project/Program include environmental benefits (e.g., expand environmental and resource stewardship, ecosystem restoration, public education, recharge area protection, land use management, endangered species

restoration, invasive species reductio

Yes - expansion of environmental stewardship, public education and outreach through the development of target applied irrigation rates and technical assistance, recharge area protection, and land-use management.

Does the Project/Program improve groundwater management (e.g., understanding of groundwater basin and threats of overdraft, local management, implementation of basin management objectives, water elevation monitoring, banking/recharge, etc.)?

Developing target applied irrigation rates for all crops grown in North County will increase our understanding of Agricultural water use within the area where a severe water shortage exists. Technical assistance will support local management of water resources and implementation of basin management objectives.

Does the Project/Program improve flood management (e.g., low impact development, watershed management, flood control projects, system operations, stream/floodplain restoration, etc.)?

Technical assistance will focus o LID projects as applicable for specific agricultural users and support holistic watershed management.

Does the Project/Program improve water resources management and outreach (e.g. public outreach and education, collaboration among urban, ag, rural and environmental interests, alignment of water resources program, local control, etc.)?

The proposed water-wise program will provide educational opportunities and provide landowners with practical implementation strategies for decreasing water use and increasing irrigation efficiency. The water-wise program will also include assistance for landowners to implement recommendations to ensure that conservation is achieved.

Does the Project/Program address water-related needs of a disadvantaged community and/or tribal lands(e.g., watershed management, education, critical water quality or quantity, flood control, contamination, or wastewater treatment)?

Yes - San Miguel is located within the Paso Robles groundwater basin area and will be served by this program.

Does the Project/Program address climate change concerns (e.g., provide an energy efficient approach or reduce greenhouse gas emissions)?

No

Will this project involve partnerships with other agencies or a neighboring IRWM region?

Maybe

If yes or maybe, please explain:

The RCD may partner with the Vineyard team to provide technical assistance and develop target applied irrigation rates.

Describe what impacts, if any, will occur if the Project/Program is not implemented:

Water conservation efforts by agricultural landowners cannot be maximized without an understanding of how much water needs to be applied by crop and by microclimate to maintain viability without water waste. In addition, may farmers and ranchers require technical assistance and implementation assistance to fully understand all options related to water conservation and financial assistance to implement those recommendations.

Other Comments:

G-4 Ranked Project List

Summary Scoring

Project Information								Project Attributes					Project Objectives							Project Category Ranking						
Projects	Sponsor	Sub-Region	Project or Concept?	Project Category	Project Cost	Project Start Date	Related to IRWM and Goals (Pass/Fail)	Is there Multi-Agency support or sponsorship?	Is the Concept Regional or Inter-Regional (i.e., includes adjacent IRWM Areas)?	Does the Concept support a DAC?	Total Project Attributes	Total Goals	Water Supply	Ecosystem	Groundwater	Flood Management	Water Management	Total Objectives	Phase 1b: Total Score	Timeliness	Technical Feasibility	Environ-mental Compliance	Permitting	Funding	Prioritization Category	Total Point Score
SLO County Drought Protection & Climate Change Preparedness Pilot Project	GREENSPACE - The Cambria Land Trust	Multi-Regional	Project	Project Category	$250K-$500K	6_1_2014	Pass	5	5	5	15	25	20.00	20.00	16.67	14.29	20.00	90.95	130.95	0	0	0	0	0	Not Ready	130.95
Nature Center & Conservation Hub	Upper Salinas Las Tablas Resource Conservation District	Multi-Regional	Concept	Project Category	$1M-$5M	3_1_2015	Pass	5	5	5	15	25	14.00	20.00	16.67	11.43	20.00	82.10	122.10	0	0	0	0	0	Not Ready	122.10
Water Conservation Corps	California Conservation Corps (CCC) - San Luis Obispo Center _ (Other Partners TBD)	Multi-Regional	Concept	Project Category	$1M-$5M	9_1_2014	Pass	5	5	5	15	25	12.00	11.43	10.00	20.00	15.00	68.43	108.43	0	0	0	0	0	Not Ready	108.43
Agricultural Water Management and Use Efficiency	Coastal San Luis Resource Conservation District	Multi-Regional	Project	Project Category	$500K-$1M	Ready to proceed as	Pass	5	5	5	15	25	14.00	11.43	13.33	11.43	17.50	67.69	107.69	0	0	0	0	0	Not Ready	107.69
Morro Bay Cayucos Sanitation District Salt and Nutrient Management Plan	City of Morro Bay	Multi-Regional	Project	Project Category	<$250K	1_15_2014	Pass	5	5	0	10	20	20.00	20.00	20.00	-	15.00	75.00	105.00	0	0	0	0	0	Not Ready	105.00
LID Pilot Program	Upper Salinas Las Tablas Resource Conservation District	Multi-Regional	Project	Project Category	<$250K	6_1_2014	Pass	5	5	5	15	25	16.00	8.57	3.33	17.14	17.50	62.55	102.55	0	0	0	0	0	Not Ready	102.55
Off Stream Storage within the North County	Paso Robles Agricultural Alliance for Groundwater	Multi-Regional	Concept	Project Category	>$5M	n_a	Pass	5	5	5	15	25	10.00	2.86	20.00	8.57	20.00	61.43	101.43	0	0	0	0	0	Not Ready	101.43
Raising Santa Margarita Dam	Paso Robles Agricultural Alliance for Groundwater	Multi-Regional	Concept	Project Category	>$5M	n_a	Pass	5	5	5	15	25	10.00	2.86	13.33	14.29	20.00	60.48	100.48	0	0	0	0	0	Not Ready	100.48
Stormwater Rewards (LID) Rebate Program	Coastal San Luis Resource Conservation District	Multi-Regional	Project	Project Category	$250K-$500K	Ready to proceed as soon as	Pass	5	5	5	15	25	16.00	11.43	6.67	11.43	12.50	58.02	98.02	0	0	0	0	0	Not Ready	98.02
Evaluating land-surface subsidence and potential groundwater-storage losses as part of assessing proposed water banking sites in Paso Robles Groundwater Basin		Multi-Regional	Project	Project Category	<$250K	1_1_2015	Pass	5	5	5	15	25	8.00	8.57	10.00	11.43	12.50	50.50	90.50	0	0	0	0	0	Not Ready	90.50
Conservation Projects for Coastal Watersheds: Phase 1 Planning and Design	Coastal San Luis Resource Conservation District	Multi-Regional	Project	Project Category	$250K-$500K	7_1_2014	Pass	5	5	5	15	25	10.00	11.43	6.67	14.29	7.50	49.88	89.88	0	0	0	0	0	Not Ready	89.88
Countywide Watershed Planning Phase II	Coastal San Luis Resource Conservation District	Multi-Regional	Project	Project Category	<$250K	6_1_2014	Pass	5	5	0	10	25	6.00	17.14	13.33	5.71	7.50	49.69	84.69	0	0	0	0	0	Not Ready	84.69
County-wide Watershed and Creek Signage	US-LT RCD	Multi-Regional	Project	Project Category	<$250K	12:00:00 AM	Pass	5	5	5	15	25	10.00	8.57	10.00	2.86	12.50	43.93	83.93	0	0	0	0	0	Not Ready	83.93
Phase 2 - Lake Nacimiento Potable Water Treatment Plant	City of Paso Robles	Multi-Regional	Project	Project Category	>$5M	1_1_2020	Pass	5	5	0	10	20	18.00	2.86	13.33	-	12.50	46.69	76.69	0	0	0	0	0	Not Ready	76.69
Regional Implementation of Groundwater Management Activities	Various (depends on basin)	Multi-Regional	Concept	Project Category	0	Varies by basin	Pass	5	5	0	10	20	6.00	2.86	10.00	-	10.00	28.86	58.86	0	0	0	0	0	Not Ready	58.86
Rancher 2 Rancher Program	Coastal San Luis Resource Conservation District	Multi-Regional	Project	Project Category	<$250K	When funds are available	Pass	5	5	0	10	15	12.00	14.29	-	-	5.00	31.29	56.29	0	0	0	0	0	Not Ready	56.29
Urban Landscape Water Use Efficiency and Conservation Program	Coastal San Luis Resource Conservation District	Multi-Regional	Project	Project Category	<$250K	Ready to proceed as	Pass	5	5	5	15	20	2.00	2.86	3.33	-	5.00	13.19	48.19	0	0	0	0	0	Not Ready	48.19
North Coast Watershed Plans	US-LT RCD	North Coast	Project	Project Category	<$250K	12:00:00 AM	Pass	5	0	5	10	25	16.00	14.29	13.33	20.00	17.50	81.12	116.12	0	0	0	0	0	Not Ready	116.12
Rehabilitation Installation of Retention Ponds in North Coast (store & release)	Upper Salinas Las Tablas Resource Conservation District	North Coast	Concept	Project Category	<$250K	12:00:00 AM	Pass	5	0	5	10	25	14.00	17.14	10.00	17.14	15.00	73.29	108.29	0	0	0	0	0	Not Ready	108.29
Conservation Planning for North Coast Landowners	Upper Salinas-Las Tablas Resource Conservation District	North Coast	Project	Project Category	<$250K	TBD	Pass	5	0	5	10	25	10.00	14.29	3.33	20.00	12.50	60.12	95.12	0	0	0	0	0	Not Ready	95.12
Los Padres CCC Center - Stormwater LID Treatment Project	Morro Bay National Estuary Program	North Coast	Project	Project Category	$500K-$1M	6_1_2014	Pass	5	0	0	5	25	12.00	11.43	3.33	17.14	17.50	61.40	91.40	0	0	0	0	0	Not Ready	91.40
Chorro Creek Ecological Reserve Floodplain Restoration Project	Morro Bay National Estuary Program	North Coast	Project	Project Category	>$5M	1_1_2015	Pass	5	0	0	5	25	8.00	17.14	6.67	11.43	7.50	50.74	80.74	0	0	0	0	0	Not Ready	80.74
8th Street Upper Aquifer Well and Nitrate Removal Facility	Los Osos Community Services District	North Coast	Project	Project Category	$500K-$1M	Spring 2014	Pass	5	0	0	5	20	12.00	8.57	20.00	-	12.50	53.07	78.07	0	0	0	0	0	Not Ready	78.07
Water Conservation Partnerships in Chorro Valley	Morro Bay National Estuary Program	North Coast	Project	Project Category	$1M-$5M	1_1_2015	Pass	5	0	0	5	25	14.00	11.43	3.33	5.71	10.00	44.48	74.48	0	0	0	0	0	Not Ready	74.48
County Service Area 16 - New Storage Tank	San Luis Obispo County Flood Control & Water Conservation District	North Coast	Concept	Project Category	$1M-$5M	7_1_2015	Pass	0	0	0	0	15	10.00	-	6.67	-	7.50	24.17	39.17	0	0	0	0	0	Not Ready	39.17
CSA 16 - Waterline - Upsize 1st Street	San Luis Obispo County Flood Control & Water Conservation District	North Coast	Concept	Project Category	$500K-$1M	7_1_2013	Pass	0	0	0	0	10	8.00	-	-	-	7.50	15.50	25.50	0	0	0	0	0	Not Ready	25.50
CSA 16 - Waterline Loop N. 2nd to N. 3rd Streets	San Luis Obispo County Flood Control & Water Conservation	North Coast	Concept	Project Category	<$250K	7_1_2017	Pass	0	0	0	0	10	8.00	-	-	-	7.50	15.50	25.50	0	0	0	0	0	Not Ready	25.50
County Service Area 10A - New 200k Gallon Storage Tank	San Luis Obispo County Flood Control & Water Conservation	North Coast	Concept	Project Category	$1M-$5M	7_4_1905	Pass	0	0	0	0	10	8.00	-	-	-	5.00	13.00	23.00	0	0	0	0	0	Not Ready	23.00
Los Osos Landfill Remediation - Pump and Treat	County of San Luis Obispo	North Coast	Project	Project Category	$500K-$1M	2013-2014	Fail	5	0	5	10	5	-	-	3.33	-	-	3.33	18.33	0	0	0	0	0	Not Ready	18.33
Templeton CSD East Side Force Main and Lift Station Project	Templeton CSD	North County	Project	Project Category	>$5M	March 2014 or later depending on funding	Pass	0	0	0	0	25	20.00	17.14	20.00	17.14	17.50	91.79	116.79	0	0	0	0	0	Not Ready	116.79
Paso Robles Groundwater Basin Restoration and Basin Recharge	Upper Salinas-Las Tablas Resource Conservation District	North County	Concept	Project Category	$500K-$1M	Undetermined	Pass	5	0	5	10	25	14.00	14.29	13.33	20.00	12.50	74.12	109.12	0	0	0	0	0	Not Ready	109.12

North County Fertilizer Regions Precision Agriculture	Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)	North County	Project	Project Category	<$250K	1_1_2014	Pass	0	0	5	5	25	12.00	20.00	16.67	17.14	10.00	75.81	105.81	0	0	0	0	0	Not Ready	105.81
Upper Salinas watershed plans	US-LT RCD	North County	Project	Project Category	<$250K	12:00:00 AM	Pass	0	0	0	0	25	16.00	14.29	13.33	17.14	15.00	75.76	100.76	0	0	0	0	0	Not Ready	100.76
Atascadero Creek Watershed Management Plan	City of Atascadero	North County	Concept	Project Category	$250K-$500K	1_1_2014	Pass	5	0	0	5	25	12.00	17.14	10.00	17.14	12.50	68.79	98.79	0	0	0	0	0	Not Ready	98.79
North County Precision Irrigation Research Program Precision Agriculture	Upper Salinas Las Tablas Resource Conservation District	North County	Project	Project Category	<$250K	1_1_2014	Pass	5	0	5	10	25	14.00	14.29	10.00	5.71	17.50	61.50	96.50	0	0	0	0	0	Not Ready	96.50
Water-wise program (with target applied irrigation rates)	US-LT RCD	North County	Project	Project Category	<$250K	12:00:00 AM	Pass	5	0	5	10	25	12.00	2.86	10.00	8.57	20.00	53.43	88.43	0	0	0	0	0	Not Ready	88.43
Toad Creek flood control, restoration and basin re-charge	Upper Salinas-Las Tablas Resource Conservation District	North County	Project	Project Category	$500K-$1M	Undetermined	Pass	5	0	0	5	25	10.00	11.43	6.67	17.14	10.00	55.24	85.24	0	0	0	0	0	Not Ready	85.24
Irrigation Distribution System at Paso Robles Airport Area	Paso Robles Agricultural Alliance for Groundwater	North County	Concept	Project Category	>$5M	7_1_2014	Pass	5	0	5	10	20	12.00	2.86	20.00	-	20.00	54.86	84.86	0	0	0	0	0	Not Ready	84.86
Supplemental Water Supplies for Paso Robles Groundwater Basin	Various	North County	Project	Project Category	>$5M	1_1_2014	Pass	5	0	5	10	25	12.00	2.86	13.33	5.71	12.50	46.40	81.40	0	0	0	0	0	Not Ready	81.40
Community Based Social Marketing - Paso Groundwater Basin Community (water quality &	Upper Salinas Las Tablas Resource Conservation District	North County	Project	Project Category	<$250K	1_1_2014	Pass	0	0	5	5	20	12.00	5.71	6.67	-	20.00	44.38	69.38	0	0	0	0	0	Not Ready	69.38
North County Strategic Plan	Institute for Advanced Technology & Public Policy, Cal Poly, San Luis Obispo	North County	Concept	Project Category	$1M-$5M	7_6_1905	Pass	5	0	0	5	25	4.00	14.29	6.67	2.86	10.00	37.81	67.81	0	0	0	0	0	Not Ready	67.81
Recycled Water Treatment and Distribution System - Phase 1	City of Paso Robles	North County	Project	Project Category	>$5M	1_1_2018	Pass	5	0	0	5	15	16.00	-	13.33	-	17.50	46.83	66.83	0	0	0	0	0	Not Ready	66.83
Recycled Water Treatment and Distribution System - Phases 2 and 3	City of Paso Robles	North County	Project	Project Category	>$5M	1_1_2025	Pass	5	0	0	5	15	16.00	-	13.33	-	17.50	46.83	66.83	0	0	0	0	0	Not Ready	66.83
Groundwater Monitoring Program and Modeling Program for the Paso Robles Groundwater Basin	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS)	North County	Concept	Project Category	>$5M	n_a	Pass	5	0	0	5	15	8.00	-	20.00	-	17.50	45.50	65.50	0	0	0	0	0	Not Ready	65.50
Community Water Systems for Subdivided Regions Overlying the Paso Robles Groundwater Basin	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS)	North County	Concept	Project Category	$1M-$5M	n_a	Pass	0	0	0	0	15	12.00	-	16.67	-	20.00	48.67	63.67	0	0	0	0	0	Not Ready	63.67
Paso Robles Groundwater Basin In-Lieu Recharge Study and Preliminary Layout	Paso Robles Agricultural Alliance for Groundwater	North County	Concept	Project Category	>$5M	n_a	Pass	5	0	0	5	15	10.00	-	13.33	-	20.00	43.33	63.33	0	0	0	0	0	Not Ready	63.33
Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin	Vineyard Team	North County	Project	Project Category	$250K-$500K	any	Pass	5	0	0	5	15	8.00	-	10.00	-	17.50	35.50	55.50	0	0	0	0	0	Not Ready	55.50
Vertical Well Project for HRCSD	Heritage Ranch Community Services District	North County	Project	Project Category	$250K-$500K	12:00:00 AM	Pass	0	0	0	0	20	10.00	2.86	-	5.71	10.00	28.57	48.57	0	0	0	0	0	Not Ready	48.57
Arroyo Grande Creek Channel Waterway Management Program	San Luis Obispo County Flood Control and Water Conservation District, Zone 1_1A	North County	Project	Project Category	>$5M	12:00:00 AM	Pass	5	0	5	10	10	-	11.43	-	11.43	-	22.86	42.86	0	0	0	0	0	Not Ready	42.86
Emergency Water Turnout for Heritage Ranch CSD	Heritage Ranch CSD	North County	Project	Project Category	<$250K	04_01_13	Pass	5	0	0	5	15	10.00	2.86	-	-	7.50	20.36	40.36	0	0	0	0	0	Not Ready	40.36
County Service Area 7A - Oak Shores - Interception Sewer System Replacement	County of San Luis Obispo	North County	Concept	Project Category	>$5M	7_1_2013	Pass	5	0	0	5	15	6.00	2.86	-	-	7.50	16.36	36.36	0	0	0	0	0	Not Ready	36.36
Toad Creek Waterway Management Program	SLO County Flood Control and Water Conservation District	North County	Concept	Project Category	<$250K	12:00:00 AM	Pass	5	0	0	5	10	-	11.43	-	8.57	-	20.00	35.00	0	0	0	0	0	Not Ready	35.00
CSA 16 - Waterline - Replace Centre Street	San Luis Obispo County Flood Control & Water Conservation	North County	Project	Project Category	$1M-$5M	7_1_2012	Pass	0	0	0	0	10	8.00	-	-	-	7.50	15.50	25.50	0	0	0	0	0	Not Ready	25.50
21st Street Reservoir Reconstruction	City of Paso Robles	North County	Project	Project Category	>$5M	1_1_2017	Pass	0	0	0	0	15	4.00	-	-	2.86	2.50	9.36	24.36	0	0	0	0	0	Not Ready	24.36
San Miguel Flood Control Program	San Luis Obispo County Flood Control and Water Conservation District	North County	Concept	Project Category	$1M-$5M	12:00:00 AM	Pass	0	0	5	5	5	-	-	-	8.57	-	8.57	18.57	0	0	0	0	0	Not Ready	18.57
San Miguel Community Services District Water System Improvements - Disadvantaged Community	San Miguel Community Services District - Disadvantaged Community	North County	No Response	Project Category	$500K-$1M	1_15_2013	Fail	0	0	5	5	5	2.00	-	-	-	-	2.00	12.00	0	0	0	0	0	Not Ready	12.00
CSA 16 (Shandon) Water Reliability Project	County of San Luis Obispo	North County	Concept	Project Category	>$5M	6_26_1905	Fail	5	0	0	5	0	-	-	-	-	-	-	5.00	0	0	0	0	0	Not Ready	5.00
Meadow Creek Watershed And Flood Reduction Plan	Coastal San Luis Resource Conservation District and	South County	Project	Project Category	$250K-$500K	Ready to proceed as	Pass	5	0	5	10	25	10.00	17.14	6.67	20.00	20.00	73.81	108.81	0	0	0	0	0	Not Ready	108.81
NCMA NMMA Salt and Nutrient Management Plan (SNMP)	City of Arroyo Grande	South County	Project	Project Category	$250K-$500K	1_1_2014	Pass	5	0	5	10	25	18.00	14.29	13.33	5.71	17.50	68.83	103.83	0	0	0	0	0	Not Ready	103.83
Santa Maria Groundwater Basin Groundwater Flow Model	NCMA Agencies (Oceano Community Services District,	South County	Project	Project Category	$500K-$1M	7_1_2014	Pass	5	0	5	10	25	18.00	8.57	16.67	5.71	17.50	66.45	101.45	0	0	0	0	0	Not Ready	101.45
Lopez Lake Spillway Raise Project	Zone 3 Agencies (Cities of Arroyo Grande, Grover Beach	South County	Project	Project Category	>$5M	Not Available	Pass	5	0	5	10	25	18.00	2.86	13.33	14.29	17.50	65.98	100.98	0	0	0	0	0	Not Ready	100.98
See Canyon Watershed Management Plan	Central Coast Salmon Enhancement	South County	Concept	Project Category	<$250K	12:00:00 AM	Pass	5	0	0	5	25	6.00	17.14	6.67	17.14	12.50	59.45	89.45	0	0	0	0	0	Not Ready	89.45
Lopez Pipeline Improvements	Northern Cities Management Area (NCMA) Agencies: Oceano Community Services	South County	Project	Project Category	$1M-$5M	10_1_2013	Pass	5	0	5	10	25	14.00	2.86	6.67	11.43	17.50	52.45	87.45	0	0	0	0	0	Not Ready	87.45
Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed	Coastal San Luis Resource Conservation District	South County	Project	Project Category	<$250K	when funds available	Pass	5	0	0	5	25	8.00	14.29	10.00	8.57	15.00	55.86	85.86	0	0	0	0	0	Not Ready	85.86
Los Berros Creek Floodplain Restoration: Phase 2 Design and Implementation	Coastal San Luis Resource Conservation District	South County	Project	Project Category	$500K-$1M	1_1_2015	Pass	5	0	5	10	25	6.00	11.43	3.33	17.14	10.00	47.90	82.90	0	0	0	0	0	Not Ready	82.90

Regional Recycled Water System (Pismo Beach and SSLOCSD)	City of Pismo Beach	South County	Concept	Project Category	>$5M	4_1_2015	Pass	5	0	5	10	20	16.00	2.86	13.33	-	17.50	49.69	79.69	0	0	0	0	0	Not Ready	79.69
Los Berros Creek Floodplain Restoration: Phase I Acquisition and Agricultural Berm Removal	Coastal San Luis Resource Conservation District	South County	Project	Project Category	$500K-$1M	7_1_2014	Pass	5	0	5	10	25	6.00	11.43	3.33	11.43	12.50	44.69	79.69	0	0	0	0	0	Not Ready	79.69
Pismo Beach Recycled Water System	City of Pismo Beach	South County	Project	Project Category	$1M-$5M	10_1_2014	Pass	5	0	5	10	20	16.00	2.86	13.33	-	17.50	49.69	79.69	0	0	0	0	0	Not Ready	79.69
Arroyo Grande Creek Watershed Program	Central Coast Salmon Enhancement	South County	Project	Project Category	$1M-$5M	12:00:00 AM	Pass	5	0	5	10	25	2.00	11.43	3.33	14.29	10.00	41.05	76.05	0	0	0	0	0	Not Ready	76.05
Conjunctive Use and Groundwater Banking Evaluation	Oceano Community Services District	South County	Concept	Project Category	<$250K	12:00:00 AM	Pass	5	0	5	10	15	16.00	-	13.33	-	17.50	46.83	71.83	0	0	0	0	0	Not Ready	71.83
Oceano Drainage Improvement Project - Hwy 1 & 13th Street	County of San Luis Obispo, Department of Public Works	South County	No Response	Project Category	$1M-$5M	7_1_2010	Pass	5	0	5	10	20	2.00	-	6.67	17.14	7.50	33.31	63.31	0	0	0	0	0	Not Ready	63.31
Feasibility Study for Recycled Water for Agricultural Use	Coastal San Luis Resource Conservation District	South County	Project	Project Category	<$250K	Ready to proceed as	Pass	5	0	5	10	20	8.00	5.71	6.67	-	12.50	32.88	62.88	0	0	0	0	0	Not Ready	62.88
Flood Control Zone 3 - Lopez WTP Sludge Bed 1 & 2 Upgrades	San Luis Obispo County Flood Control & Water Conservation	South County	Project	Project Category	$250K-$500K	7_1_2016	Pass	5	0	5	10	15	8.00	-	3.33	-	7.50	18.83	43.83	0	0	0	0	0	Not Ready	43.83
Lopez Water Treatment Plant Membrane Rack Addition	San Luis Obispo County Flood Control and Water Conservation District	South County	Project	Project Category	$500K-$1M	7_1_2013	Pass	5	0	5	10	10	10.00	-	-	-	12.50	22.50	42.50	0	0	0	0	0	Not Ready	42.50
Mid-Higuera Bypass	City of San Luis Obispo	South County	Project	Project Category	$1M-$5M	6_1_2017	Pass	5	0	5	10	10	-	5.71	-	8.57	-	14.29	34.29	0	0	0	0	0	Not Ready	34.29
Lopez Water Project Habitat Conservation Plan	San Luis Obispo County Flood Control and Water Conservation District	South County	Project	Project Category	$1M-$5M	1_1_2018	Pass	5	0	5	10	10	4.00	2.86	-	-	-	6.86	26.86	0	0	0	0	0	Not Ready	26.86
Nacimiento Water Project Energy Recovery Turbine	City of San Luis Obispo	South County	Project	Project Category	$1M-$5M	1_1_2014	Pass	5	0	5	10	10	4.00	2.86	-	-	-	6.86	26.86	0	0	0	0	0	Not Ready	26.86
Beach Street Alley Waterline Replacement	Oceano Community Services District	South County	Project	Project Category	<$250K	TBD (Pending	Pass	5	0	5	10	5	8.00	-	-	-	-	8.00	23.00	0	0	0	0	0	Not Ready	23.00
Recycle Water Distribution System Expansion	City of San Luis Obispo	South County	Project	Project Category	$250K-$500K	1_1_2014	Pass	0	0	5	5	5	12.00	-	-	-	-	12.00	22.00	0	0	0	0	0	Not Ready	22.00

G-5 Project Form Review Paper

San Luis Obispo
Integrated Regional Water Management (IRWM)
Project Form Review (PFR)
White Paper

November 12, 2013
DRAFT
For Review by Project Sponsors

November 12, 2013 Project Sponsor Review Working Draft

Table of Contents

Purpose **7**
Full Long Form Project List **9**
Objectives Scoring **11**
Project Reports **12**
Description Categories **12**
Project Elements **17**
Project 1. Livestock & Land Program **19**
1.1 Project Number: MLTP_ECO1 19
1.2 Project Location: Countywide 19
1.3 Project Sponsor: CSLRCD and US-LTRCD 19
1.4 Project Summary: 19
1.1 IRWM Plan Section Information and Analysis: 20
1.1.1 Project Solicitation and Ranking 20
1.1.2 Impact and Benefit 23
1.1.3 Plan Performance and Monitoring 23
1.1.4 Financing Strategies 23
1.1.5 Climate Change 23
Project 2. Low Impact Development (LID) Pilot Program **24**
2.1 Project Number: MLTP_WMT2 24
2.2 Project Location: North Coast and North County 24
2.3 Project Sponsor: US-LTRCD 24
2.4 Project Summary: 24
2.5 IRWM Plan Section Information and Analysis: 25
2.5.1 Project Solicitation and Ranking 25
2.5.2 Impact and Benefit 28
2.5.3 Plan Performance and Monitoring 28
2.5.4 Financing Strategies 29
2.5.5 Climate Change 29
Project 3. North County Fertilizer Regions_ Precision Agriculture **30**
3.1 Project Number: NCNT_ECO1 30
3.2 Project Location: North County 30
3.3 Project Sponsor: US-LTRCD 30
3.4 Project Summary: 30
3.5 IRWM Plan Section Information and Analysis: 31
3.5.1 Project Solicitation and Ranking 31
3.5.2 Impact and Benefit 34
3.5.3 Plan Performance and Monitoring 34
3.5.4 Financing Strategies 34

3.5.5 Climate Change 35
Project 4. Attiyeh Ranch Conservation Easement 36
4.1 Project Number: NCNT_ECO2 36
4.2 Project Location: North County 36
4.3 Project Sponsor: Land Conservancy 36
4.4 Project Summary: 37
4.5 IRWM Plan Section Information and Analysis: 37
4.5.1 Project Solicitation and Ranking 37
4.5.2 Impact and Benefit 41
4.5.3 Plan Performance and Monitoring 41
4.5.4 Financing Strategies 41
4.5.5 Climate Change 42
Project 5. Upper Salinas River Basin Water Conservation/Conjunctive Use Project 43
5.1 Project Number: NCNT_GWM1 43
5.2 Project Location: North County 43
5.3 Project Sponsor: TCSD 43
5.4 Project Summary: 43
5.5 IRWM Plan Section Information and Analysis: 45
5.5.1 Project Solicitation and Ranking 45
5.5.2 Impact and Benefit 49
5.5.3 Plan Performance and Monitoring 50
5.5.4 Financing Strategies 50
5.5.5 Climate Change 51
Project 6. Community Based Social Marketing (CBSM) 52
6.1 Project Number: NCNT_WMT1 52
6.2 Project Location: North County 52
6.3 Project Sponsor: US-LTRCD 52
6.4 Project Summary: 52
6.5 IRWM Plan Section Information and Analysis: 52
6.5.1 Project Solicitation and Ranking 52
6.5.2 Impact and Benefit 55
6.5.3 Plan Performance and Monitoring 56
6.5.4 Financing Strategies 56
6.5.5 Climate Change 56
Project 7. Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices 57
7.1 Project Number: NCNT_WMT2 and NCNT_WMT3 57
7.2 Project Location: North County 57
7.3 Project Sponsor: Vineyard Team and US-LTRCD 57
7.4 Project Summary: 57
7.5 IRWM Plan Section Information and Analysis: 58
7.5.1 Project Solicitation and Ranking 58
7.5.2 Impact and Benefit 61
7.5.3 Plan Performance and Monitoring 62
7.5.4 Financing Strategies 62
7.5.5 Climate Change 63
Project 8. City of Paso Robles Lake Nacimiento Water Treatment Plant Construction 64

8.1 Project Number: NCNT_WSP1 64
8.2 Project Location: North County 64
8.3 Project Sponsor: City of Paso Robles 64
8.4 Project Summary: 64
8.5 IRWM Plan Section Information and Analysis: 65
8.5.1 Project Solicitation and Ranking 65
8.5.2 Impact and Benefit 69
8.5.3 Plan Performance and Monitoring 69
8.5.4 Financing Strategies 70
8.5.5 Climate Change 70
Project 9. San Miguel Critical Water System Improvements 71
9.1 Project Number: NCNT_WSP2 71
9.2 Project Location: North County 71
9.3 Project Sponsor: SMCSD 71
9.4 Project Summary: 71
9.5 IRWM Plan Section Information and Analysis: 72
9.5.1 Project Solicitation and Ranking 72
9.5.2 Impact and Benefit 76
9.5.3 Plan Performance and Monitoring 76
9.5.4 Financing Strategies 76
9.5.5 Climate Change 77
Project 10. 8th Street Upper Aquifer Well and Nitrate Removal Facility 78
10.1 Project Number: NCST_GWM1 78
10.2 Project Location: North Coast 78
10.3 Project Sponsor: LOCSD 78
10.4 Project Summary: 78
10.5 IRWM Plan Section Information and Analysis: 79
10.5.1 Project Solicitation and Ranking 79
10.5.2 Impact and Benefit 83
10.5.3 Plan Performance and Monitoring 84
10.5.4 Financing Strategies 84
10.5.5 Climate Change 84
Project 11. Los Padres CCC Center - Stormwater LID Treatment Project 85
11.1 Project Number: NCST_FLD1 85
11.2 Project Location: North Coast 85
11.3 Project Sponsor: Morro Bay Estuary Program 85
11.4 Project Summary: 85
11.5 IRWM Plan Section Information and Analysis: 87
11.5.1 Project Solicitation and Ranking 87
11.5.2 Impact and Benefit 89
11.5.3 Plan Performance and Monitoring 90
11.5.4 Financing Strategies 90
11.5.5 Climate Change 91
Project 12. Oceano Drainage Improvement Project - Hwy 1 & 13th Street 92
12.1 Project Number: SCNT_FLD2 92
12.2 Project Location: South County 92
12.3 Project Sponsor: County 92

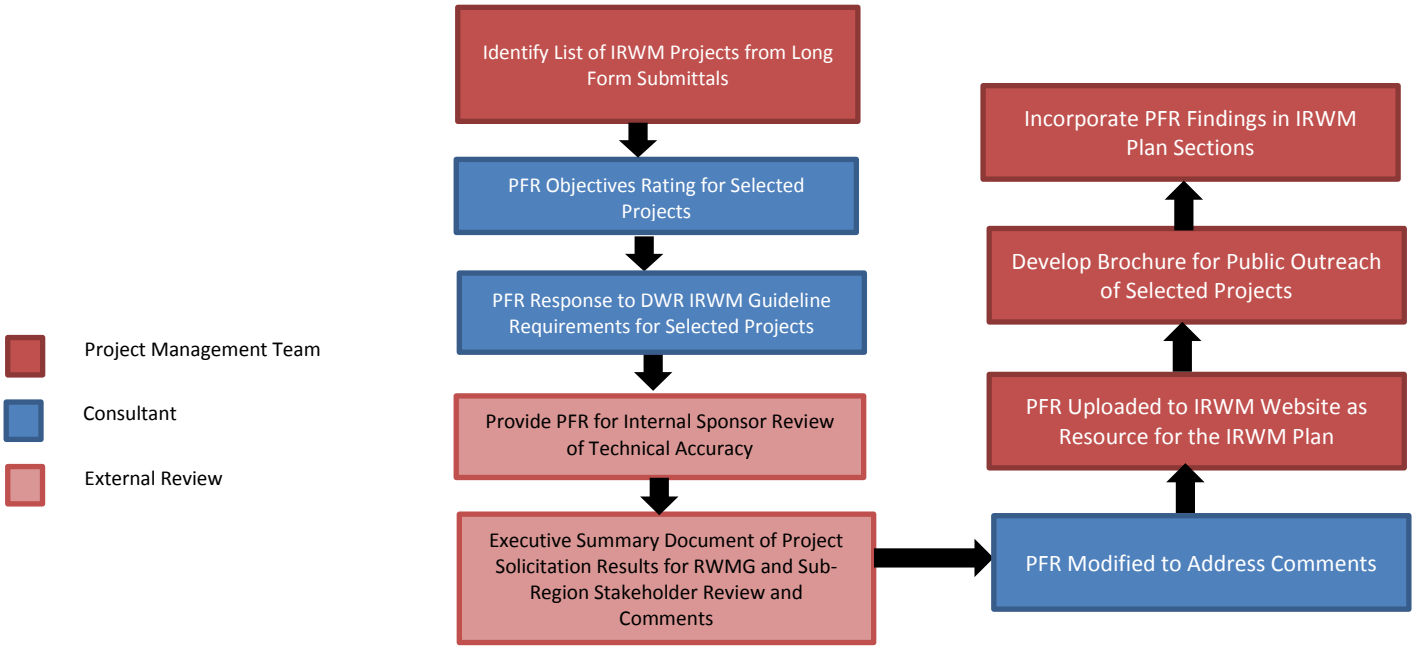
12.4 Project Summary: [what is size of pond? Is there retention and detention?] 92
12.5 IRWM Plan Section Information and Analysis: 93
12.5.1 Project Solicitation and Ranking 93
12.5.2 Impact and Benefit 96
12.5.3 Plan Performance and Monitoring 97
12.5.4 Financing Strategies 97
12.5.5 Climate Change 98
Project 13. Lopez Water Treatment Plant Membrane Rack Addition 99
13.1 Project Number: SCNT_WMT1 99
13.2 Project Location: South County 99
13.3 Project Sponsor: District 99
13.4 Project Summary: 99
13.5 IRWM Plan Section Information and Analysis: 100
13.5.1 Project Solicitation and Ranking 100
13.5.2 Impact and Benefit 103
13.5.3 Plan Performance and Monitoring 103
13.5.4 Financing Strategies 103
13.5.5 Climate Change 104
Project 14. Recycle Water Distribution System Expansion 105
14.1 Project Number: SCNT_WSP2 105
14.2 Project Location: South County 105
14.3 Project Sponsor: City of SLO 105
14.4 Project Summary: [is groundwater a summer peaking supply or year round? What is cost to treat versus other supplies? Other Incentives to connect?] 105
14.5 IRWM Plan Section Information and Analysis: 106
14.5.1 Project Solicitation and Ranking 106
14.5.2 Impact and Benefit 109
14.5.3 Plan Performance and Monitoring 110
14.5.4 Financing Strategies 110
14.5.5 Climate Change 110
Project 15. Pismo Beach Recycled Water Treatment Plant 111
15.1 Project Number: SCNT_WSP4 111
15.2 Project Location: South County 111
15.3 Project Sponsors: 111
15.4 Project Summary: 111
15.5 IRWM Plan Section Information and Analysis: 112
15.5.1 Project Solicitation and Ranking 112
15.5.2 Impact and Benefit 116
15.5.3 Plan Performance and Monitoring 117
15.5.4 Financing Strategies 117
15.5.5 Climate Change 118

Purpose

Throughout the period from June 2013 to October 2013, the 2013 IRWM Plan Project Management Team (PMT) through the Regional Water Management Group (RWMG) solicited projects and programs for purposes of including approximately ten (10) of the "best" projects in the plan. As explained in **Section I – Project Solicitation and Prioritization**, all concepts, projects/programs are included in the Project List of **Appendix H – Project List and Integration** (as is this paper). Of the 103 submittals, 38 of those were classified as projects, and only 23 were identified as being of high value to the IRWM Plan based on the scoring and rating methodology described in Section I. Sponsors of the high value projects were encouraged to submit a Phase 2 – Long Form project description to provide: 1.) the full project description, 2.) the project type(s), 3.) detailed information including cost, financing and schedule , 4.) relationships with State Priorities and Resource Management Strategies (RMS), and 5.) the project effects to climate change.

The purpose of this Project Form Review Paper (PFR) is to carefully describe the 15 selected projects of the 23 high value projects selected by the PMT as the cross-section of projects and programs with the highest degree of uniformity and certainty in meeting the IRWM Plan's Goals and Objectives, and the highest degree of confidence of project implementation in the next 1 to 3 years (i.e., a high readiness-to-proceed (RTP)). The descriptive information presented in the PFR for each of the selected projects follows the November 2012 State Guidelines in the preparation of an IRWM Plan.

The flowchart below summarizes the Detailed Project Review process and who is responsible for completing each step.



The PFR is not comparing the projects for which is best; rather, the goal is to address the State Guidelines for

each high value project in one document and to present the reasons why the projects are technically feasible and strategically suited to belong in the IRWM Plan. The ultimate goal is to use the PFR as a resource document for purposes of presenting the detailed project-based material in the IRWM Plan. In addition, as an Appendix to the Plan, the PFR provides additional detail in one location if questions or concerns are raised in the Public Draft review process as to the basis for why projects were selected.

High Value Long Form Project List

The full list of Project Long Forms is presented in the table below with a brief reason why the project was, or was not, included in the PFR. All included projects have a high RTP except for North Coast Sub-Region where medium RTP projects are included because no high RTP projects were identified. Sub-Region distribution of projects is considered a criterion for project selection.

PFRNo.	Project Code	Project Title	Primary Reason for In or Out of IRWM Plan
1	**MLTP_ECO1**	Livestock & Land Program	Included for its multi-objective regional benefits and water quality enhancement while gaining private property owner volunteer participation for purposes of environmental stewardship.
	MLTP_FLD1	Water Conservation Corps	Not included due to low RTP.
	MLTP_WMT1	County-Wide Watershed Awareness Campaign	Not included due to medium RTP and lower total Objectives-based point score.
2	**MLTP_WMT2**	LID Pilot Program	Included for its public education and outreach, as well as targets private property owners to volunteer and pay for LID projects with monetary rebate incentives.
3	**NCNT_ECO1**	North County Fertilizer Regions_ Precision Agriculture	Included for its wide public educational value and regional water quality benefits through volunteer participation by private property owners with reduced fertilizer cost incentives.
4	**NCNT_ECO2**	Attiyeh Ranch Conservation Easement	Included for public and environmental stewardship values; both resulting in the protection of the watershed and endangered flora and fauna species in the region.
	NCNT_FLD1	Upper Salinas watershed plans	Not included due to medium RTP.
5	**NCNT_GWM1**	Atascadero Groundwater Basin Augmentation Expansion Project	Included because of the multi-objective elements of improving recycled wastewater for higher beneficial use as a source for groundwater recharge and potable supplies in the Salinas Underflow.
6	**NCNT_WMT1**	Community Based Social Marketing	Included due to its low cost high education value over a broad region, enlisting support of private property owners to take ownership of their environment, and improving sustainable farming and business practices.
7	**NCNT_WMT2**	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices	The project is a teamed effort by two project sponsors. Included for its high public educational value and regional water demand reduction benefits over a critically impacted groundwater basin, and offers change in irrigation practices through volunteer participation by private property owners with reduced pumping cost incentives.
8	**NCNT_WSP1**	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction	Included due to its maximizing existing supplemental water supplies in a critically impacted groundwater basin, and use as a conjunctive supply for drought protection and effects of climate change in the region.
9	**NCNT_WSP2**	San Miguel Critical Water System Improvements	Included due to the DAC need for critical water system improvements.
	NCST_ECO1	Water Conservation Partnerships in Chorro Valley	Not include due to low RTP and low total Objectives-based point score.
10	**NCST_GWM1**	8th Street Upper Aquifer Well and Nitrate Removal Facility	Included for its multi-Objective values of managing a critical groundwater basin subjected to continuous degradation of water quality from septic systems (nitrates) and sea water intrusion, and the local collaboration between the agencies and public using a vetted management plan.
11	**NCST_FLD1**	Los Padres CCC Center - Stormwater LID Treatment Project	Included for its multi-Objective benefits of environmental stewardship, LID educational opportunities, and the conversion of private lands to restore a rich ecosystem of flora and fauna.
	SCNT_FLD1	Mid-Higuera Bypass	Not included due to its medium RTP and low Objectives point score.
12	**SCNT_FLD2**	Oceano Drainage Improvement Project - Hwy 1 & 13th Street	Included due to multi-Objective elements of providing a DAC with health and safety along with water quality, groundwater recharge, and flood attenuation.
13	**SCNT_WMT1**	Lopez Water Treatment Plant Membrane Rack Addition	Included due to increased use of existing surface water supplies and reduction in groundwater use in a constrained groundwater basin shared by multiple agencies and private well owners.
	SCNT_WSP1	Lopez Lake Spillway Raise Project	Not included due to low RTP.
14	**SCNT_WSP2**	Recycle Water Distribution System Expansion	Included due to increased recycled water use in a DAC with the benefit of reducing groundwater pumping in a constrained groundwater basin.
	SCNT_WSP3	NCMA_NMMA Salt and Nutrient Management Plan (SNMP)	Not included due to medium RTP.
15	**SCNT_WSP4**	Pismo Beach Recycled Water Project	Included due to increased recycled water use through construction of a recycled water treatment plant. Recycled water will be made available in a constrained groundwater basin where imported surface water supplies are necessary. A high level of support from local stakeholders makes this a preferred project for the South County Sub-Region.

Geographic significance of project selection is considered in project selection to ensure each Sub-Region is equally represented in the IRWM Plan. The figure below identifies the approximate location of the capital projects, and programs, typically spread across large areas, are positioned at the approximate center of the area of benefit. Icons are positioned to avoid covering community names.

Objectives Scoring

The first step in the Detailed Project Review process places each project into an Objectives filter where a scoring system is applied to determine where a project succeeds in satisfying the IRWM Plans Goals and Objectives.[1] The scoring system in use is as follows:

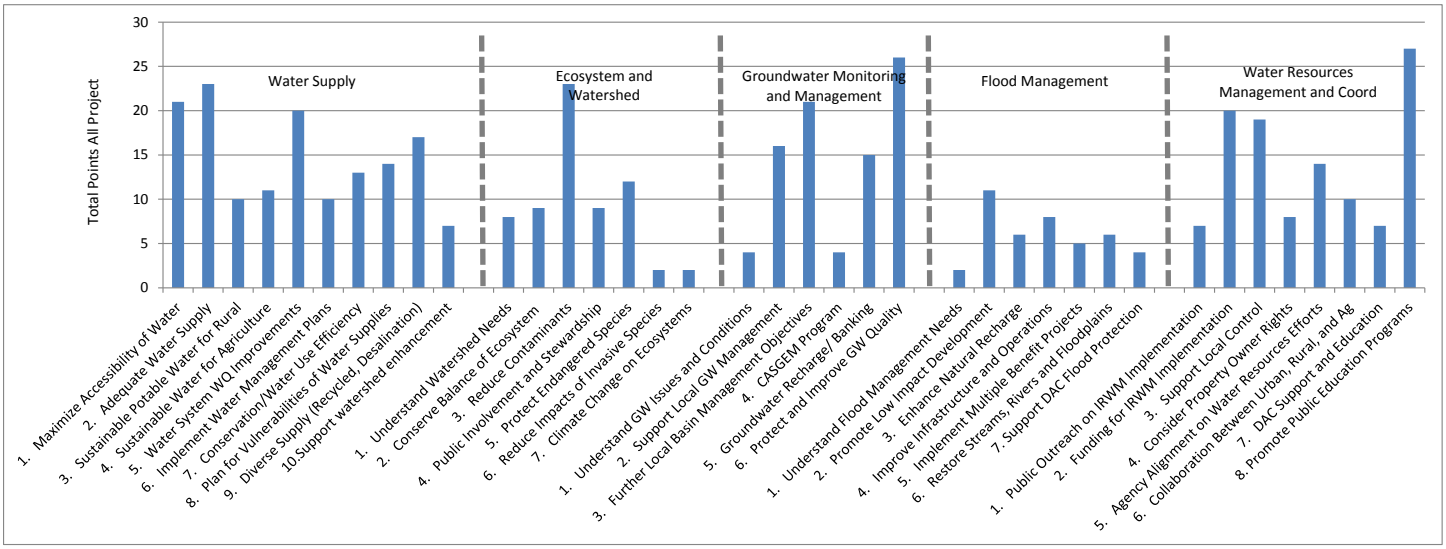
Score

1 – Project partially satisfies the Objective's intent but is not focused on achieving the Objectives intended outcome.

2 – Project is not directly aimed to satisfy the Objective's intended outcome, but Objective benefits can be measured as part of implementation.

3 – Project is directly aimed to meet the Objective's intended outcome and includes a monitoring program for quantifying the Objective benefits.

The figure below is a total for each Objective for all projects, and is used as a means of illustrating the level of uniformity of meeting the IRWM Plan's Goals and Objectives with the chosen suite of IRWM Projects. The information gathered from this exercise is further used in associating the Project Elements (i.e., derived from WMS and RMS) for each project as described in the individual in the Project Elements section and within each of the project reports.



[1]All information contained within the PFR is derived from the Long Form and Objectives Worksheet; however, in cases where a difference is noted, the PFR takes precedence over both documents.

Project Reports

Each Project Report is organized based on addressing the individual questions for each of the relevant IRWM Plan sections. The report begins with the project name, id, location, and a brief summary. Bolded portions of the summary are to point out the root activity(s) being applied, resulting benefits, and potential financing. The response to questions are derived from the PMT's review and understanding of the project based on the Long Form and resource documentation. As part of the Public review process, the project sponsors have had the opportunity to review the responses and allowed to comment on any concerns; especially, where technical experience of the PMT is applied in responding to questions based on provided information.

The order of the projects is based solely on an alphabetic sort of the Project ID and not on any ranking criteria. This creates a structure where projects of similar location and type are grouped together. The Project ID identifies the Sub-Region and the Project Goal Category as follows:

Project Sub-Region Abbreviations:

- MLTP – Multiple Sub-Regions
- NCST – North Coast
- SCNT – South County
- NCNT – North County

Project Goal Categories

- WSP – Water Supply
- ECO – Ecosystem and Watershed
- GWM – Groundwater Monitoring and Management
- FLD – Flood Management
- WMT – Water Resources Management and Communications

Goal Categories are typically based on the highest scoring goal in the Objectives Filter process (i.e., only one category is applied). The number following the Goal Category is sequential and is used as a unique identifier and for sorting purposes only.

Description Categories

The following provides a brief description of what is expected under each of the questions being asked of the projects by the PFR. To the extent possible, and with the information provided, the goal is to respond to each of the DWR November 2012 Guideline requirements. Essentially, the information provided herein is needed in the IRWM Plan for each of the selected projects.

(a) **Contribute to Plan Objectives**

Response is a brief description of how IRWM Objectives with a score of three (3) meet the Objective. Given the cross over and integration of IRWM Objectives, projects will meet various Goals and Objectives with varying levels of precision as explained above. The highest scoring Objectives are what make the project strategically viable to the Plan's success. A Secondary Objectives discussion is included for each project to highlight some of the less prominent integration opportunities that are not likely to be the reason for the project's selection for future IRWM Plan implementation.

(b) **Relate to WMS, RMS and Objectives**

The blank table below is taken from **Section I – Project Solicitation and Prioritization.** The purpose of this exercise is to provide the linkage between how DWR State Objectives translate into Resource Management Strategies (RMS) that equate in their implementation to the SLO Water Management Strategies (WMS). SLO Project Elements are the action building blocks of the IRWM to implement the WMS and result in achieving the Goals and Objectives listed and described in **Section C – IRWM Goals and Objectives**.

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
•	•	•	•	

(c) **Technical Feasibility and Justification**

Technical Feasibility and Justification uses the Long Form responses, to the extent possible, which give factual data and references to the project's purpose and stated (or claimed) physical benefits. In cases where projects are more of a program nature, the stated processes and specific actions are listed along with intended benefits and cost.

(d) **Benefit DACs**

Responds to whether the project provides direct DAC benefits through the implementation of the stated Project Elements. Secondary benefits to a DAC may be included in this discussion if it is not directly apparent in the Contribute to Plan Objectives or Technical Feasibility and Justification heading.

(e) **Environment Justice**

Environmental Justice addresses issues of impact to low income areas that occur either as a result of project construction or project implementation. Benefits of project implementation to low income areas may be included if directly targeted to this purpose.

(f) **Cost and Financing**

Provides estimated costs of the project and need for financing through grant programs. Costs are typically broken out into capital and labor costs, and O&M costs. Labor costs can often be met through in kind services by the sponsoring agency to meet any necessary local cost share for grant funding.

(g) **Feasibility through Economic Analysis**

The economic analysis of most projects needs should adhere to state methods of deriving benefits and monetizing the benefits, if possible. The response is based on the state method of analysis to be used and

what factors are proposed for assessing the total cost and benefit of project implementation. Benefits typically include some form of monetary value assignment. There are four primary methods of deriving an economic benefits analysis for a project as follows (taken from DWR November 2012 Guidelines):

> ***Section D1 – Cost Effectiveness Analysis.*** *For relatively small non-DAC projects (total project cost is less than $300,000) or projects that benefit a DAC (up to a total project cost of $1 million), applicants have the option of completing a Cost Effectiveness Analysis. This option evaluates whether the physical benefits provided by the project are provided at the least possible cost, or not.*
>
> *Applicants may not split a single project into multiple smaller components or phases in order to be eligible for the cost effectiveness analysis option.*
>
> ***Section D2 – Non-Monetized Benefit Analysis****. For projects where benefits cannot be monetized, a Non-Monetized Benefit Analysis should be completed. This analysis requires a description (where possible) of applicable social, environmental stewardship, and sustainability benefits that may result from the implementation of a project.*
>
> ***Section D3 – Monetized Benefits Analysis.*** *For projects which do not fall in Section D1 option and benefits can be quantified in dollar terms (excluding flood damage reduction (FDR) benefits), a Monetized Benefits Evaluation should be completed.*
>
> ***Section D4 – Flood Damage Reduction Benefit Analysis.*** *For projects with FDR benefits, determination of the expected annual damages with and without the project should be completed.*
>
> Lastly, if the RWMG recommends their own method, the following is applied:
>
> ***Section D5 – Proposal Costs and Benefits Summary.*** *Annual costs must be provided for each individual project; and a benefit-cost summary must be presented for the entire proposal, regardless of benefit analysis method or options used.*

(h) **Project Readiness to Proceed**

Readiness of a project to move forward to implementation in a short amount of time is a critical criterion to the IRWM Plan's success. If funding sources do present themselves as part of IRWM Plan implementation, the projects included in the IRWM Plan should be ready to proceed, if selected for implementation. The timeframe for beginning and ending the project is typically provided as a response to this criterion.

(i) **Strategic Implementation of the Plan and Project Merit**

Includes a discussion of how the project adds value to the IRWM Plan by being multi-objective, multi-regional, and/or addresses issues that are not included in other projects and have a high likelihood of implementation success. Project sponsors' level of effort in following through with what is stated in the Long Form and bringing their project to a high readiness to proceed is critical to the IRWM Plan merit and success.

(j) **Climate Change Effects**

This states whether the project has an effect on climate change conditions, or, conversely, if the project includes climate change adaptation. In all cases, projects typically have no appreciable GHG production to impact climate change negatively.

(k) **Reducing GHG compared to Project Alternatives**

The study of GHG reduction for purposes of minimizing climate change impacts is not typically done under mitigated negative declaration CEQA review unless a full EIR is required. In addition, projects with older

EIRs, may not include this analysis, so a discussion is included in this section of when, or if, a GHG alternative analysis will be performed. This is addressed further in **Section H – Mitigating or Adapting to Climate Change**.

(l) **Project Sponsor to adopt IRWM Plan**

A simple response of either yes or no on whether or not the sponsoring agency plans to adopt the IRWM Plan upon its final completion.

(m) **Reduce Dependence on Delta Supplies**

If the project is reliant on SWP water, projects affecting the need for the SWP are evaluated and qualitatively described based on the anticipated level of benefit to reduced SWP reliance.

(n) **Potential Impacts and Benefits of Project Implementation**

Provides a summary of impacts and benefits listed in the Long Form with the level of specificity based on how far along the project is in the planning and design phases of implementation. A qualitative discussion of water resources benefits is provided for purposes of evaluating climate change benefits/impacts.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Project-specific impact benefit analyses are not typically done in accordance with state standards. In most cases, this level of analysis will not be done until required to do so for purposes of grant funding or loans. Most project sponsors have the analysis spread through many documents and in their minds, but not compiled and on paper.

(p) **What is Proposed Methods of Monitoring Project Performance**

Monitoring of specific metrics is required for each project based on the benefits and IRWM Objectives being met. In most cases, the metrics are physical in nature and can be monitored through standard practices applying the latest technology. In cases where benefits are difficult to capture, other, more qualitative metrics are used as an indicator of the potential benefits; especially, if implemented on a larger scale. For example, the number of times the implementation of a best management practice is practiced could be an indicator of the improvement to water quality, since the water quality benefits themselves are difficult to capture in smaller scale or pilot-level projects.

(q) **Known and Possible Funding Sources**

Lists the known and possible funding sources based on the Long Form responses and what is provided in **Section M – Financing Strategies**.

(r) **Funding Mechanisms, Including Water Rates, etc.**

Describes how the proposed funds are collected, providing assurance that monies will be available to see that implementation, monitoring, and O&M are secured prior to project approval.

(s) **How O&M Costs for Projects will be Covered**

Describes which funding source(s) is to be used for specifically O&M. The table following this description is based off of a questionnaire provided to the stakeholders for identification of finance options and their certainty. In many cases, the funding options include grants from state and federal grant and loan programs based on the type and status of the project.

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Responds to whether a process was used in the selection of the project that considered GHG emissions. In most cases the project did not go through a rigorous project alternatives analysis including GHG emissions. The IRWM Plan will provide a discussion of the GHG emission concerns in **Section H – Mitigating or Adapting to Climate Change.**

Project Elements

As defined in **Section I – Project Solicitation and Prioritization**:

> *Project Elements are "building blocks" of region-specific activities derived from a thorough evaluation of the State's Resource Management Strategies (RMS) (**Section G – Resource Management Strategies**), and applied local Water Management Strategies (WMS), which consist of activities to promote the Goals and Objectives (**Section C –Goals and Objectives)** of the Updated Plan.*

For each project, the PFR defines how specific RMS and WMS are satisfied starting with the Statewide Objectives and ending in meeting the IRWM Objectives. Project Elements are developed within the PFR to describe the activity needed to bridge the gap between what is the strategy being implemented and the expected results (or Objectives). The collection of Project Elements succeeds in providing the essential activities of each project.

The overlap of Project Elements amongst the high value projects illustrates the types of activities targeted for the IRWM region. The value of this understanding can further shape the high value projects or create additional and perhaps integrated projects where Project Elements are applied to several projects under one project/program umbrella. The synergism of combining related projects and sharing in the resources and learning from the combined efforts, are available if project sponsors want to improve the opportunity for outside funding.

The table below presents the projects and Project Elements, illustrating the level of overlap within the Sub-Regions. Since the Project Elements speaks to the activity or planned facility construction, they offer a quick means of understanding the projects without having to go to each project's review.

Table -1. Project Elements

PFR No.	Project Code	Project Title	Project Elements											
			Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater	Provide public education in the value of conserving water for purposes of achieving sustainable surface water and groundwater drinking water supplies	Provide public incentives to gain volunteer change in on-site water use and handling practices	Provide cost-effective alternatives to private property owners in managing on-site sources of contamination.	Create and preserve natural ecosystems and protect endangered flora and fauna through Land Stewardship and Conservation Easement programs	Develop and improve water and wastewater treatment facilities to reduce point source discharges of contaminants to natural streams	Develop and Improve methods of water reuse within a community	Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies	Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan	Develop methods of adapting to Climate Change and other vulnerabilities to the region's water resources	Attenuate storm flows and improve stormwater quality by increasing on-site retention and detention controls	Seek outside funding for water and flood control projects in low income areas
1	MLTP_ECO1	Livestock & Land Program	■	■	■	■								
2	MLTP_WMT2	LID Pilot Program	■	■	■	■							■	
3	NCNT_ECO1	North County Fertilizer Regions_ Precision Agriculture	■	■	■	■								
4	NCNT_ECO2	Attiyeh Ranch Conservation Easement	■				■							
5	NCNT_GWM1	Project 5. Upper Salinas River Basin Water Conservation/Conjunctive Use Project						■	■	■				
6	NCNT_WMT1	Community Based Social Marketing	■	■	■	■								
7	NCNT_WMT2	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices	■											
8	NCNT_WSP1	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction								■	■			
9	NCNT_WSP2	San Miguel Critical Water System Improvements								■				■
10	NCST_GWM1	8th Street Upper Aquifer Well and Nitrate Removal Facility								■	■			
11	NCST_FLD1	Los Padres CCC Center - Stormwater LID Treatment Project	■				■		■			■		
12	SCNT_FLD2	Oceano Drainage Improvement Project - Hwy 1 & 13th Street	■										■	■
13	SCNT_WMT1	Lopez Water Treatment Plant Membrane Rack Addition								■	■			
14	SCNT_WSP2	Recycle Water Distribution System Expansion								■	■			
15	SCNT_WSP4	Pismo Beach Recycled Water Project						■	■	■				■

Project 1. Livestock & Land Program

1.1 Project Number: MLTP_ECO1

1.2 Project Location: Countywide

1.3 Project Sponsor: CSLRCD and US-LTRCD

Coastal San Luis Resource Conservation District (CSLRCD) and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)

Source: Image of Local Horse Property

1.4 Project Summary:

The Livestock and Land (L&L) Program addresses natural resource concerns faced by livestock owners by providing **education, technical assistance and cost share** for implementation of management measures. Water quality improvements will be achieved by **giving livestock owners the tools to complete water quality site assessments** and to **implement Best Management Practices near listed waterways**. The behavioral and management practice changes achieved by this program will provide immediate and lasting water quality and watershed improvements by reducing the off-site mobilization of manure, urine and sediments from livestock facilities. The program will make significant progress toward watershed goals listed in TMDLs and watershed plans.

Related website: http://livestockandland.org/

Available Source Documents: *County General Plan Conservation and Open Space Element; Agriculture Element*

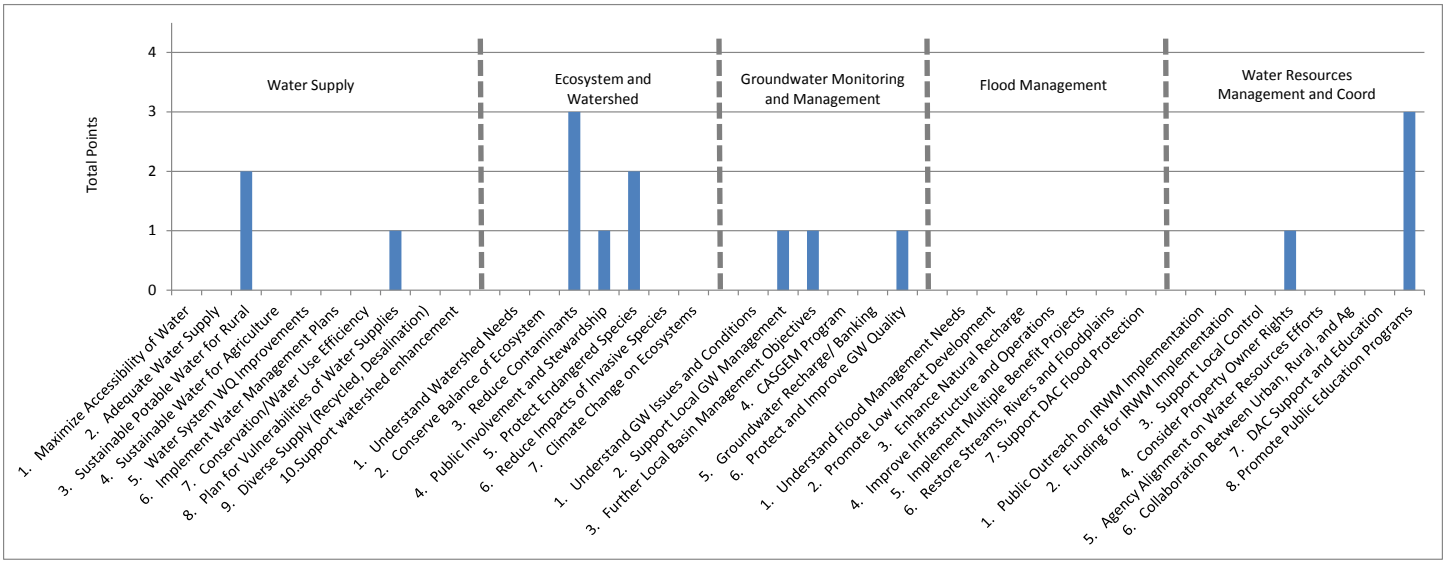
1.1 IRWM Plan Section Information and Analysis:

1.1.1 *Project Solicitation and Ranking*

How does the project:

(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:



***Ecosystem* – Reduce Contaminants**

L&L Program targets non-point source (NPS) discharges to natural water ways through education and best management practices on private lands hosting livestock animals. The program could lead to larger scale implementation throughout region if benefits are shown to exist from its implementation.

***Water Resources Management* – Promote Public Education**

The focus of the L&L Program is on educating private land owners hosting livestock. Bringing awareness to land owners and relatively inexpensive practices can achieve a true benefit to the water quality in the region.

Secondary Objectives

While difficult to monitor, containment of livestock waste with positive barriers to deep percolation lead to improved rural drinking water quality from shallow private wells. At a large scale of implementation, possible downstream benefits of preventing runoff of contaminants include protection of endangered species.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Improve Water Quality • Practice Resources Stewardship	• Pollution Prevention • Ecosystem Restoration	• Environmental and Habitat Protection • NPS Pollution Control • Water Quality Protection and Improvement	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination.	• Reduce Contaminants • Promote Public Education

(c) **Technical Feasibility and Justification**

Without the L&L Program, landowners would likely continue business as usual. The current land management approach has led to existing water quality impairments by sediment, nutrients and pathogens as demonstrated by the list of 21 impaired water bodies. TMDLs related to livestock and grazing would likely be addressed by the RWQCB on a slower timeline with less consistency between watersheds and with fewer region wide benefits.

Assumptions for water quality benefits of the program are based on modeling calculations. Assuming a site has 1 horse on 1 acre of land, and that the site is 500 ft from the nearest creek in area receiving 0.4 inches of precipitation, the resulting annual pollutant loads are shown in the table below.

Manure		**9.13**	**tons**
Nutrients			
	Total Nitrogen	102.20	lbs
	Total Phosphorus	40.15	lbs
Pathogens			
	Total Streptococcus	9.49E+13	colonies
	Fecal Coliform	1.53E+11	colonies

It is too difficult to estimate sediment load benefits without knowing the site specific characteristics. However, most projects will also have reductions to sediment loading that can be calculated with predictive analysis models.

Best management practices are typically aimed at better health of livestock and improving conditions around areas of livestock (e.g., fly reduction, smell, safety, etc.). Costs are not anticipated to be outside the expected cost of providing a sustainable environment for raising livestock.

(d) **Benefit DACs**

Program is not targeted to a DAC and does not have secondary benefits to downstream DAC.

(e) **Environment Justice**

Program does not impact low income communities.

(f) **Cost and Financing**

Program cost is estimated to be $318,000 to be expended over a period of ten years broken down into initial education, implementation, and monitoring in the first 2 to 3 years. Grant funding is being sought for all but the local cost share, identified as coming from in-kind labor services.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D2 – Non-Monetized Benefits Analysis will likely be selected for the water quality benefits. The ability to assign benefits is tied to the ability to specifically measure the pollutant load reductions due to BMP implementation on project sites. However, given the larger uncontrolled watershed, of which the Project is a small portion, it is extremely difficult due to the nature and diversity of variables not only on the site, but also because the target pollutants have other sources upstream in the watershed (landslide loading of sediment for example).

(h) **Project Readiness to Proceed**

The project's status as a program, exempts it from permitting and CEQA review. Upon funding, the project could proceed immediately.

(i) **Strategic Implementation of the Plan and Project Merit**

Given the high population of small ranchette horse properties in the IRWM Plan region, the L&L program can assist greatly in improved water supplies and healthy ecosystem, and can have lasting effects in the standard practices of livestock management.

(j) **Climate Change Effects**

Given the small scale of the L&L program, it is not anticipated to affect climate change or be affected by it. GHG contribution from animal waste is a noted GHG concern for statewide livestock and dairy activities, but not addressed in this project.

(k) **Reducing GHG compared to Project Alternatives**

Given the program status, the L&L project does not require an alternative analysis.

(l) **Project Sponsor to adopt IRWM Plan**

Yes

(m) **Reduce Dependence on Delta Supplies**

Not Applicable

1.1.2 *Impact and Benefit*

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Benefits addressed above in Technical Feasibility and Justification heading. Project has the potential to benefit water quality leading to potential decreases in treatment costs downstream for potable supplies. Given the uncertainty of location and the small amount of change, the change in treatment operations cannot be quantified

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

No further analysis is proposed beyond what has already been done.

1.1.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

Project performance will be measured based on the number of private property livestock owners who volunteer and actually make physical and process changes in handling of animal waste on-site. Inspection will be limited, due to cost and intrusion. Baseline water quality samples will be taken in areas of highest participation for comparison at the end of the proposed 10-year monitoring period.

1.1.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

Grant monies, local government programs, and in-kind services.

(r) **Funding Mechanisms, Including Water Rates, etc.**

No targeted funding mechanism is identified due to low implementation cost.

(s) **How O&M Costs for Projects will be Covered**

Long term monitoring and reporting will be completed by project sponsor with in-kind services.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
MLTP_ECO1	Livestock & Land Program	$250K-$500K	Local Contributions through Donations and In-Kind Services (CSLRCD and US-LTRCD)	In-kind labor from sponsoring agencies and reporting costs are fully funded	Not Required
			Grant Monies (Prop 84, 3rd Round; USEPA Watershed Grant Program)	None	

1.1.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Not applicable to this project.

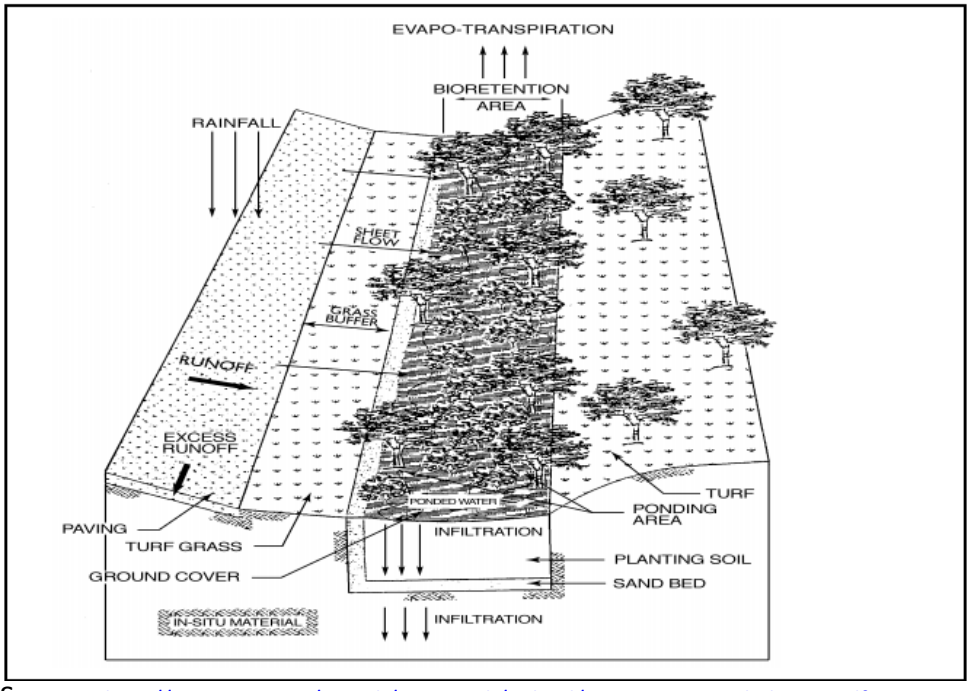
Project 2. Low Impact Development (LID) Pilot Program

2.1 Project Number: MLTP_WMT2

2.2 Project Location: North Coast and North County

2.3 Project Sponsor: US-LTRCD

Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)



Source: http://water.epa.gov/scitech/wastetech/upload/2002_06_28_mtb_biortn.pdf

2.4 Project Summary:

The Low Impact Development "Soak It Up" Rebate Program (Program) provides private property landowners in the North Coast and North County Sub-Regions rebates of up to 60% of the costs to install Low Impact Development (LID) features. The Program will include an **education and outreach program** available to all County residents regarding **stormwater impacts** of development and ways to reduce them. The US-LTRCD will provide **free landscape assessments** for property owners to determine appropriate LID strategies that can be implemented in order to reduce stormwater runoff and contamination. The property owner will receive a landscape assessment with site appropriate LID recommendations and plans. The property owner can build all or a portion of the LID features; and will pay for all costs of the installation. Those homeowners who build the features as per plan, pass an inspection, and sign a 10 year maintenance agreement with the RCD, can apply and **receive up to 60% of the total project cost**.

The development of a LID grant program for private landowners will implement elements of local watershed

plans with installation emphasis in severely drought affected watersheds, such as the Salinas River, Santa Rosa Creek, and San Simeon Creek. Strong support exists from both the civic community and the environmental community.

Available Source Documents: *County General Plan Conservation and Open Space Element*

2.5 IRWM Plan Section Information and Analysis:

2.5.1 *Project Solicitation and Ranking*

How does the project:

(a) **Contribute to Plan Objectives**

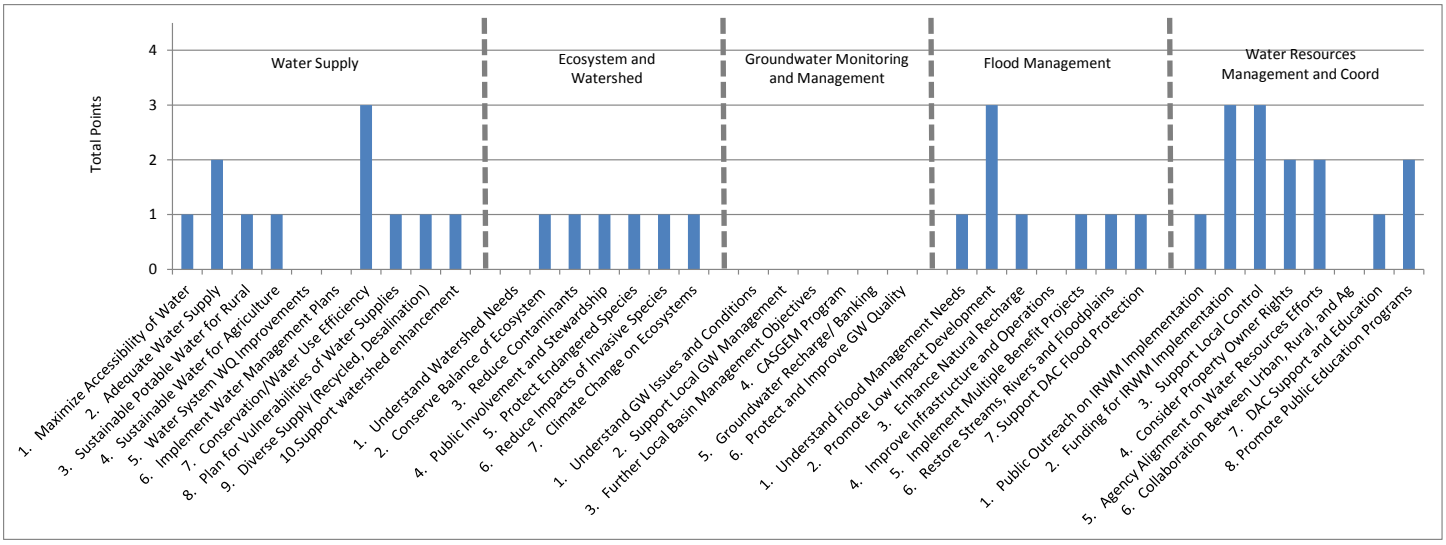
Project fully satisfies the following Objectives:

Water Supply - **Conservation/ Water Use Efficiency**

Opportunities for conducting free landscape assessments provide education and ideas to develop drought tolerant landscaping and efficient landscape irrigation to limit nuisance runoff in the peak irrigation season.

Ecosystem – **Reduce Contaminants**

Retention of urban private parcel on-site runoff will reduce the chemical and nutrient concentration in urban runoff, leading to an overall reduction from non-point source discharges throughout the IRWM region.



Flood Management – **Promote Low Impact Development**

The LID Pilot program is classified as a means of reducing the impact of stormwater runoff and contamination through parcel by parcel changes in how drainage is handled on-site. As such, the

opportunities to learn from this program, and implement cost-effective programs in new growth areas become beneficial.

Water Resources Management – **Funding for IRWM Implementation**

The project scale, cost and expected benefits are well balanced to succeed in achieving outside funding on behalf of landowners in the US-LTRCD.

Support Local Control

The pilot program will target local neighborhoods to assist them in their stewardship of natural resources - and alleviating the burden of trying a new technology and change in practices alone. All efforts and decisions will take place at the local level with county-wide visibility.

Promote Public Education

The program will create public education forums, exhibits, and materials to implement rebate program and bring awareness to the IRWM planning regions (i.e., North Coast and North County).

Secondary Objectives

The countywide LID Pilot program has an abundance of public visibility and education opportunities for the IRWM region overall. Although difficult to quantify, water quality benefits could be significant if LID programs take hold in the community and grow over time. Improvements to drinking water supplies and environmental instream benefits can be achieved as well.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Improve Water Quality • Practice Resources Stewardship • Flood Management • Demand Reduction	• Pollution Prevention • Watershed Management • Flood Management • Urban Water Use Efficiency	• Environmental and Habitat Protection • NPS Pollution Control • Flood Management • Water Conservation • Economic Incentives	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Attenuate storm flows by increasing private property on-site retention and detention controls. • Provide public incentives to gain volunteer change in on-site water use and handling practices.	• Conservation and Water Use Efficiency • Reduce Contaminants • Promote Low Impact Development • Funding for Water Resources Management • Support Local Control • Promote Public Education

(c) **Technical Feasibility and Justification**

The LID Pilot program is a stormwater management strategy that emphasizes conservation and use of existing natural site features integrated with distributed, small-scale stormwater controls to more closely mimic natural hydrologic patterns in residential, commercial and industrial settings. It is relatively easy to use and implement, offering a low cost and immediate solution to water catchment. The project is about changing the current practices of landscape construction and handling of on-site stormwater to reduce releases of contaminants off-site and improve deep percolation of sudden storm events. This includes simple low-cost projects and programs to capture stormwater runoff and applying to on-site irrigation systems. Positive physical benefits will occur to downstream ecosystems and in-stream habitats through improved water quality and reduced sediment loads.

Given the "pilot program" classification, the intent is to provide economic incentives and education so the public makes the voluntary decision to make changes in their on-site handling of stormwater runoff and changes in irrigation practices. From the (currently uncertain) level of participation, studies are to be performed and reported as to the success in public participation and recommend practices which are found to be accepted over others.

True water quality and ecosystem benefits will not by quantifiable until the greater population of a single watershed converts to LID practices. It is the intent to monitor for hydrologic effectiveness by the property owners with reporting to the US-LTRCD. Hydraulic and pollutant load reductions models will eventually be developed based upon current area data as a baseline for change. Urban demand reduction will show up in water system reporting, but lumped together with other conservation programs over time. Qualitative discussion of benefits will likely occur in the interim years of the proposed 10-year monitoring period.

(d) **Benefit DACs**

The LID Pilot Program is focused in the North Coast and North County Sub-Regions and includes the 3 of the 4 DACs of the IRWM region. Emphasis will be in drought affected watersheds.

(e) **Environment Justice**

Program does not directly or indirectly impact or discriminate against low income communities. Given the proposed owner investment requirement with rebate upon inspection, the expected level of participation in low income communities will be lower than others.

(f) **Cost and Financing**

The cost of the initial education, audits and program management is estimated at $169,000 and will be funded through grant dollars with the matching requirements funded through in-kind services by the US-LTRCD. The expected implementation is 2 years with a 10-year monitoring period with no long-term O&M costs. An estimated 20 percent of the funding is available.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D2 – Non-Monetized Benefits Analysis will likely be selected for the water quality benefits. The ability to assign benefits is tied to the ability to specifically measure the pollutant load reductions due to LID project implementation. However, given the larger uncontrolled watershed, of which the LID Pilot Project is only going to be a small portion, it is extremely difficult to ascertain true benefit on a watershed basis.

(h) **Project Readiness to Proceed**

The project's status as a non-structural program, will likely exempt it from permitting and CEQA review. Upon the receipt of funding, the project could proceed. LID programs have been utilized in other parts of the state and country and are program ready, permit enabled and have relatively low installation costs.

(i) **Strategic Implementation of the Plan and Project Merit**

The program is multi-objective and will focus its distribution throughout the North Coast and North County region fairly, as it will be a goal to have LID pilot installations in areas of peak visibility and widely distributed to create greater public awareness.

Many alternative projects involve water purveyor infrastructure that is needed but expensive. These are challenging to install and are considered "top down" approaches (government controlled) to managing water. LID is consumer driven, putting all citizens in a capacity to help with the problem of water catchment and management. These two approaches can be integrated to maximize participation and solutions to a common problem.

(j) **Climate Change Effects**

Reducing traditional methods of public water systems (supplies that need to be pumped and piped at high pressures), the project reduces GHG emissions by reducing the need for public water supplies with very little energy consumption.

(k) **Reducing GHG compared to Project Alternatives**

The more typical government controlled "top down" alternative approaches are associated with higher energy costs and construction impacts, both having a greater GHG impact.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

Reduced water demand in the IRWM region reduces reliance on SWP supplies.

2.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

No impacts are anticipated to occur as a result of this project. Project has the potential to save drainage pumping costs/energy, if pumping is necessary to convey drainage to major stream or river during flood events. Also has potential to reduce groundwater pumping costs by incrementally increasing the groundwater elevations. Both are small and difficult to quantify to any degree of accuracy.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Not applicable due to the program nature of the project.

2.5.3 ***Plan Performance and Monitoring***

(p) **What is Proposed Methods of Monitoring Project Performance**

See Technical Feasibility and Justification above.

2.5.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

Participating agencies that can provide monetary or in-kind contributions to the program include California Conservation Corps, Natural Resources Conservation Service, Cities and Community Services Districts wherever possible.

(r) **Funding Mechanisms, Including Water Rates, etc.**

No long-term funding is required other than annual reporting through in-kind service of the US-LTRCD and use of their annual budgetary process.

(s) **How O&M Costs for Projects will be Covered**

Not applicable as there are no O&M costs.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
MLTP_WMT2	LID Pilot Program	<$250K	California Conservation Corps, Natural Resources Conservation Service, and Cities and Community Services Districts who participate will provide monetary or in-kind contributions	In-kind labor from sponsoring agencies and reporting costs are fully funded	Not Required
			Grant Monies (Prop 84, 3rd Round; USEPA Watershed Grant Program)	None	

2.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

As a program level project with no large structural component, no GHG emissions alternatives analysis is required.

Project 3. North County Fertilizer Regions_ Precision Agriculture

3.1 Project Number: NCNT_ECO1

3.2 Project Location: North County

3.3 Project Sponsor: US-LTRCD

Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)

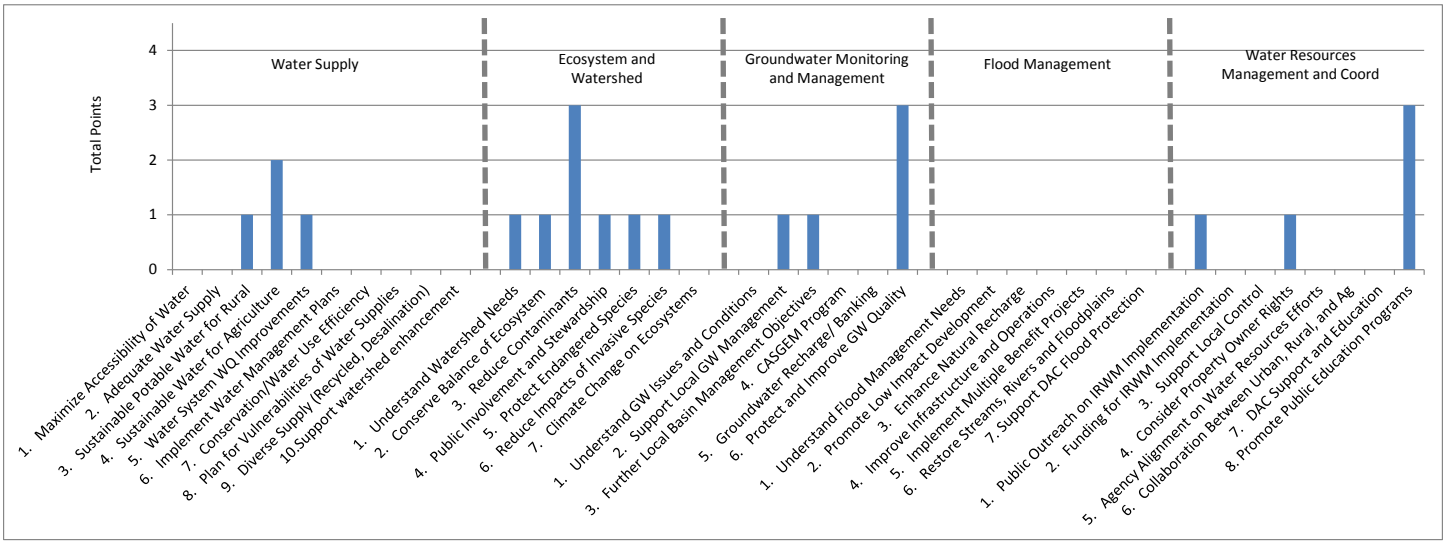
3.4 Project Summary:

This project produces **nutrient management recommendations** based on fertilizer regions in the North County. Regions are identified using soil characteristics, since they have the most effect on nutrient management. **Agricultural sites are chosen from applicants** in these regions and three different packages of **nutrient management BMPs and fertilizer programs** will be implemented at each of 5 locations. The **costs and benefits of the treatments will be compared and reported to interested parties**, and demonstrated to the public through RCD-developed workshops and tailgate style demonstrations. BMP's and nutrient management programs will be evaluated by measuring soil and water nutrient concentrations before and after treatments are implemented. Recommendations will be based on economic, agricultural and environmental factors. **Maps, recommendations and management plans will be created to be shared with the public.**

Available Source Documents: *County General Plan Conservation and Open Space Element; Agriculture Element*

3.5 IRWM Plan Section Information and Analysis:

3.5.1 *Project Solicitation and Ranking*



How does the project:

(a) **Contribute to Plan Objectives**

Project fully satisfies the following Objectives:

Ecosystem and Watershed Restoration – **Reduce Contaminants**

Improving the accuracy of fertilizer requirements reduces excess application of fertilizers, leading to an overall reduction from non-point source discharges throughout the North County Sub-Region. By providing only the amount of fertilizer the plants needs for maximum crop growth, there is less remaining fertilizer to move off-site either by means of overland runoff or by deep percolation from over irrigation and rainfall to groundwater supplies.

Groundwater Management – **Protect and Improve Groundwater Quality**

By reducing excessive application of fertilizer, this program reduces one of the largest contributors of non-point source pollution to groundwater and surface water.

Water Resources Management – **Promote Public Education**

The program will create public education forums, exhibits, and materials to bring awareness to the IRWM planning regions (i.e., North County). The US-LTRCD will hold workshops and demonstrations to showcase the BMPs and the results of the program. The US-LTRCD maintains a website that will be used to showcase the results of the project world-wide, and reports will be compiled for interested community members.

Secondary Objectives

The targeted fertilizer program has an abundance of public visibility and education opportunities for the IRWM region overall, but especially in the North County. Although difficult to quantify, water quality and economic benefits of reduced fertilizer costs could lead to improved fertilizer application in the larger agricultural community and grow over time. Other improvements include: improved drinking water quality, environmental instream benefits and healthier ecosystems, and reduction in invasive species reliant on excess nutrients in surface water.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Improve Water Quality	• Pollution Prevention	• Environmental and Habitat Protection • NPS Pollution Control	• Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	• Reduce Contaminants • Promote Public Education

(c) **Technical Feasibility and Justification**

Agricultural Growers will be the main beneficiaries of this project. This project provides another set of data for growers in the beginning phase of developing precision agriculture systems on their farms. The goal of these systems is to maximize productive yields per acre while reducing, to the maximum extent possible, negative effects on the environment. Implementation of these practices does not require large equipment costs to the farmer, and results are felt immediately serving as an economic incentive by reduced fertilizer bills.

While not targeted specifically, both public and private rural groundwater users benefit because the ultimate net effect of wide adoption of targeted fertilizer practices is an increase of surface and groundwater quality. Many municipalities, rural residential and agricultural operations depend on groundwater pumping to meet their drinking water needs. When these waters are polluted with nutrients, they have to be treated before they can be used. This expense can be reduced if precision nutrient management becomes more widespread.

As the leading conservation minded agency in the North County, it is the goal of the US-LTRCD to share data and technological advances with the members of the wider IRWM community. The on-going crisis in the Paso Robles Groundwater Basin requires protecting the available water resources, especially these resources impact economic pursuits in the farming industry. The US-LTRCD is to be used as a data repository and resource for those who want to know more information when making land resource management decisions. By leading efforts such as the Precision Fertilizer Program, the US-LTRCD becomes a partner with the agricultural community in merging their economic needs with environmental stewardship.

The main obstacle to implementation is the potential loss of crop productivity due to decreased fertilizer use. Fertilizer use has proven to be necessary to increase yields on the scale that the global population needs. Precision fertilization requires methods that deliver the precise amount of fertilizer, delivered to the correct place at the correct time to maximize plant uptake and reduce nutrient runoff and leaching.

Actions to monitor the benefit of the project implementation will include water quality from nearby streams and on-site soil sampling analysis, keeping track of each method of treatment separately in order to test their effects and quantify their benefits on water quality. The area of implementation and amounts of fertilizer reduction are believed to be significant enough to see a difference from baseline monitoring results taken prior to on-site program implementation. Nitrate will be the main nutrient analyzed, but other concentrations will also be recorded and distributed to supplement nutrient management plans that increase environmental stewardship efforts. Public awareness campaigns will spread the results of this project as growers face an increasing regulatory environment. Groundwater sampling for baseline levels of nitrates will be taken for purposes of potential program benefits to shallow drinking water supplies. Nutrient concentration analysis will take place before and after each growing season during the length of 10-year monitoring cycle of the project. Surface waters are more likely to show changes related to management practices as groundwater benefits require significant time to see on a basin level.

(d) **Benefit DACs**

Project does not benefit or impact DACs.

(e) **Environment Justice**

Program does not directly or indirectly impact or discriminate against low income communities.

(f) **Cost and Financing**

The proposed project actions are design, financial support and application processes for collaborating growers, demonstration site placement and installation of BMPs, analysis of data, report compilation and presentation through workshops. The cost of the program is estimated at $160,000 and will be funded through grant dollars with the matching requirements funded through in-kind services by the US-LTRCD. The expected implementation is 2 years with a 10-year monitoring period with no long-term O&M costs. An estimated 20 percent of the funding is available.

(g) **Feasibility through Economic Analysis**

The project has an indirect cost of reducing the cost to produce fertilizer by reducing the demand for fertilizers. There will also be a benefit in reduced transportation costs to deliver, and reduced fuel to power tractors used to apply fertilizers. Of the DWR methods for quantifying benefits, method Section D1 – Cost Effective Benefits Analysis will likely be selected for the water quality and on-farm benefits. The ability to assign benefits is tied to the ability to specifically measure the pollutant load reductions due to BMP implementation. The size of area anticipated for BMP implementation should be large enough to see quantifiable differences local runoff, soil conditions, and nearby shallow groundwater wells.

(h) **Project Readiness to Proceed**

The project's status as a non-structural program, will likely exempt it from permitting and CEQA review. Upon the receipt of funding, the project could proceed.

(i) **Strategic Implementation of the Plan and Project Merit**

This project will identify a nutrient management suite of BMPs that has the best combination of economic and environmental benefits for the North County crop growing regions. Precision nutrient management aims to minimize wasteful fertilizer practices such as over-application and incorrect placement and timing of fertilizer applications. Implementation results in a savings due to reduced fertilizer use. Multi-regional benefits will occur along the Salinas River, which has been monitored for years with many communities that rely on it for alluvial drinking water, and its mouth at the Monterey Bay, where nutrient accumulations have been known to affect the ecosystem.

(j) **Climate Change Effects**

Reduced energy cost in the production, transportation and application benefits climate change.

(k) **Reducing GHG compared to Project Alternative**

No project alternatives are included.

(l) **Project Sponsor to adopt IRWM Plan**

Yes

(m) **Reduce Dependence on Delta Supplies**

Not applicable

3.5.2 *Impact and Benefit*

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

No impacts are anticipated. Project has the potential to benefit water quality leading to potential decreases in treatment costs downstream for potable supplies. Given the uncertainty of location and the small amount of change, the change in treatment operations cannot be quantified.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Not applicable due to the program nature of the project.

3.5.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

See Technical Feasibility above.

3.5.4 *Financing Strategies*

What is planned for implementation and financing of the project:

(q) **Known and Possible Funding Sources**

Grant monies are being sought with the potential for in-kind services provided by the US-LTRCD to meet matching requirements.

(r) **Funding Mechanisms, Including Water Rates, etc.**

Grant funding programs.

(s) **How O&M Costs for Projects will be Covered**

No long-term O&M costs are anticipated as part of this program.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCNT_ECO1	North County Fertilizer Regions_ Precision Agriculture	<$250K	Local Contributions through Donations and In-Kind Services (US-LTRCD)	In-kind labor from sponsoring agencies and reporting costs are fully funded	Not Required
			Grant Monies (Prop 84, 3rd Round; USEPA Watershed Grant Program)	None	

3.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Not applicable for the program.

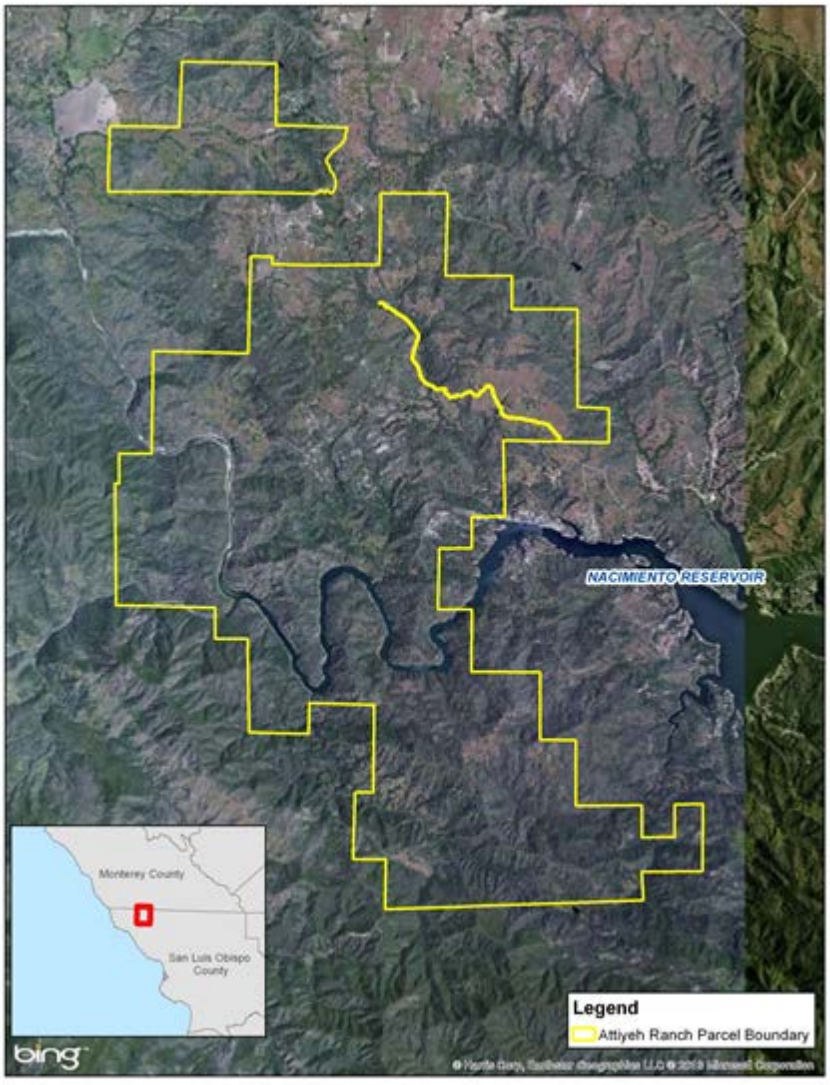
Project 4. Attiyeh Ranch Conservation Easement

4.1 Project Number: NCNT_ECO2

4.2 Project Location: North County

4.3 Project Sponsor: Land Conservancy

Land Conservancy of San Luis Obispo County



Source: 2013 SLO Round 2 Grant Application

4.4 Project Summary:

The project involves the acquisition of a conservation easement to protect the land in perpetuity.

The draft Attiyeh Ranch Conservation Easement was reviewed by the landowner with no substantive changes. The final easement language is currently being developed and contains the following prohibited land uses to ensure the land is managed consistent with the project goals:

- Subdivision
- Construction of houses or other structures
- Waste dumps
- Grading and soil dumping
- Surface and/or subsurface mineral development
- Installation of new above-ground utility systems, including, without limitation, water, sewer, power, fuel, and communication lines and related activities and equipment, except for systems servicing permitted agricultural uses on the ranch and existing structures
- Cutting or removal of native trees, shrubs, or other vegetation, except for continued reasonable land management purposes, and as may be necessary for elimination of diseased growth, fire protection, and similar protective measures, and to protect human safety

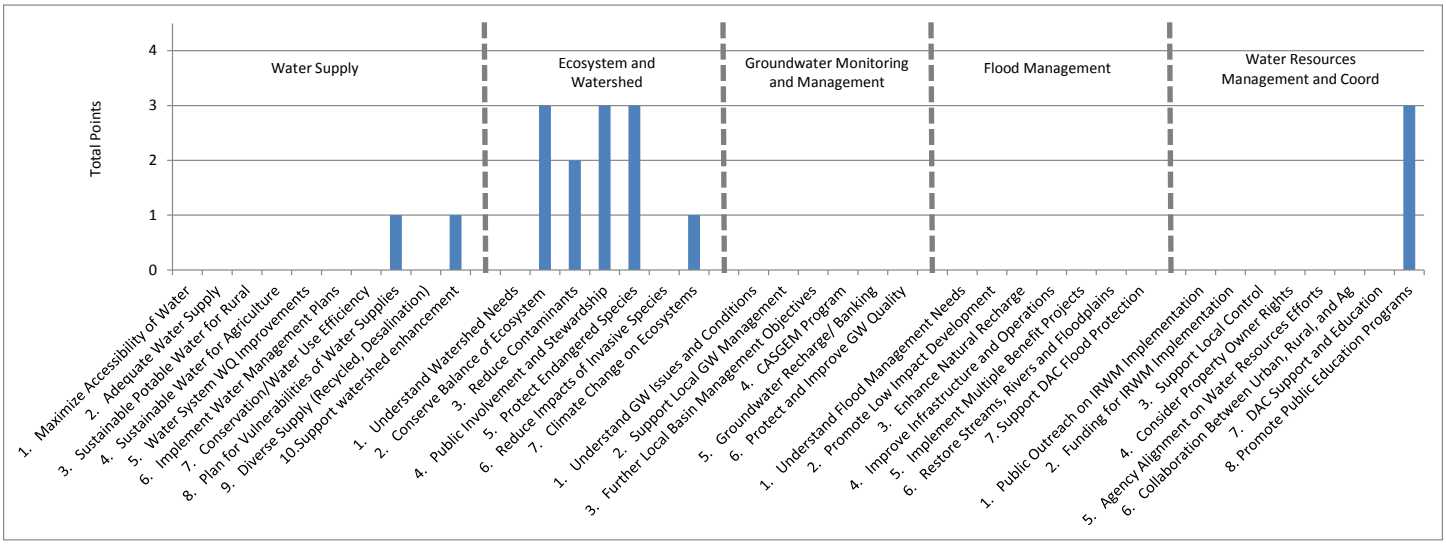
Just prior to the recordation of the easement, an updated Preliminary Title Report and Appraisal will be completed to ensure the title is clear of any potentially conflicting encumbrances and that the appraisal value is accurate. Additionally, The Land Conservancy **collects baseline documentation information** which describes the condition of the ranch at the time the easement is recorded. These data, along with baseline photographs, will be **compiled in a report** signed by both The Land Conservancy and the landowner before closing. All matching funds must be confirmed and funds sent to the project's escrow account. Once all funds have reached escrow, the conservation easement will be signed, notarized, and recorded.

To ensure all easement conditions are met and the project benefits are delivered, The Land Conservancy has adopted a **Conservation Easement Monitoring Policy and Procedure** that clearly establishes the methods to monitor all conservation easement properties it holds. Any changes to the policy must be reviewed and approved by The Land Conservancy's Board of Trustees. The conservation easement monitoring procedure can be amended by The Land Conservancy staff, as needed. At a minimum, all conservation easements are monitored once a year by two staff members of The Land Conservancy. Any actual or threatened violations to a conservation easement are documented and the landowner is notified immediately to resolve issues as soon as possible. The Land Conservancy maintains a conservation easement stewardship and defense fund as well as conservation easement insurance to help safe guard against violations and defend the terms of the easement in the event of an enforcement action.

Available Source Documents:

4.5 IRWM Plan Section Information and Analysis:

4.5.1 *Project Solicitation and Ranking*



How does the project:

(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:

Ecosystem and Watershed Restoration **– Conserve Balance of Ecosystem**

As a conservation easement, the values of the overlying ecosystem and overall watershed are protected in a natural state in perpetuity. As such, watershed flows contributing to downstream river are anticipated to benefit from reduced sediments and improved water quality.

Public Involvement and Stewardship

Allowing limited public access and a focus on public education, provides the public and local communities with the sense of ownership and pride in having pristine natural resources.

Protect Endangered Species

Anticipated beneficial activities create visibility in the importance of preservation of natural areas still home to many endangered flora and fauna species.

Water Resources Management **– Promote Public Education**

The Land Conservancy offers public education materials; a website (http://www.lcslo.org/); available public access; docent led hiking highlighting protected flora and fauna, and signage along roadways and trails.

Secondary Objectives

Because of the size of the conservation easement, large watershed management controls can take place

through maintaining the easement in a natural state allowing existing ranching and agricultural activities to take place in accordance with the conditions of the easement; not anticipated to go beyond historical levels. Watershed management is not considered a primary objective by definition where the applicability of watershed management is for more urbanized and heavy agricultural areas. By eliminating the potential for urban growth within the easement, however, the associated increases in water demand and degradation of surface water quality can be said to benefit.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Practice Resources Stewardship • Improve Water Quality	• Ecosystem Restoration • Pollution Prevention	• Environmental and Habitat Protection • NPS Pollution Control	• Create and preserve natural ecosystems and protect endangered flora and fauna through Land Stewardship and Conservation Easement programs. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	• Conserve Balance of Ecosystem • Public Involvement and Stewardship • Protect Endangered Species • Promote Public Education

(c) **Technical Feasibility and Justification**

The purpose of the Attiyeh Ranch conservation easement is to preserve the Attiyeh Ranch and prevent the conversion of what is now rangeland, grazing land and grassland to nonagricultural uses; to protect the long-term sustainability of livestock grazing including some of the benefits that occur from livestock grazing; to preserve the natural ecosystem that exists today for environmental and social benefits; and to ensure continued wildlife, water quality, watershed and open-space benefits from livestock grazing on the 8,300 acre ranch. It is further the purpose of the conservation easement to ensure the Attiyeh Ranch will be retained forever in its agricultural and natural condition and to prevent uses within the ranch that will significantly impair or interfere with the open space, agricultural, and natural habitat values of the ranch. The conservation easement will confine the use of the ranch to such activities, including, without limitation, those involving livestock grazing, habitat protection, education and other compatible uses.

As a passive ecosystem preservation project, the process for implementation of the project goals differs significantly from other more active urban water resource management projects such as drainage and water supply infrastructure projects. For the Attiyeh Project, the standard tasks associated with constructing a project (e.g., construction management, bid proposals, and scheduling) are not well-suited to the types of activities needed for implementation; however, it is still the intent that the project adheres to the organization of the active project model for ease in locating and comparing information between projects.

The project involves the acquisition of a conservation easement to protect the land in perpetuity. The draft Attiyeh Ranch Conservation Easement was reviewed by the landowner with no substantive changes. The final easement language is currently being developed and contains prohibited land uses to ensure the land is

managed consistent with the project goals. The anticipated cost of the easement is $8.4 Million including an estimated one-time labor cost of $112,115 to execute the easement, improve signage, fix fencing and create trail systems. In-kind services will also be provided by volunteers on annual basis for docent led hikes and monitoring.

(d) **Benefit DACs**

No direct benefit to DACs will occur.

(e) **Environment Justice**

The conservation easement will not impact low income areas.

(f) **Cost and Financing**

Partial funding is anticipated to come from landowner contributions, California Prop 84 or other state Grant funding, Wildlife Conservation Board, Department of Defense, Wyss Foundation, and The Nature Conservancy.

The source of the Non-State share (Funding Match) is secured by landowner contribution upon the recordation of the conservation easement as codified in Land Conservancy of San Luis Obispo County memo dated February 14, 2013. The sources of the Other State Fund share are being developed with the Department of Water Resources, Department of Fish and Wildlife, Department of Defense, The Wyss Foundation, and The Nature Conservancy.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D3 – Monetized Benefits Analysis has been selected for Environmental and Habitat Protection and NPS Pollution Control benefits based on the grant amount and the ability to monetize the benefits in terms of an annual dollar value for each year of the project's operation. In addition, Section D2– Non-Monetized Benefits Analysis has also been selected for the Community/Social Benefits based on making private lands open to the public.

(h) **Project Readiness to Proceed**

The conservation easement requirements have been negotiated and the easement papers are ready for signature.

(i) **Strategic Implementation of the Plan and Project Merit**

This project serves as the example of large-scale change through ecosystem preservation and land stewardship for purposes of maintaining the natural habitat and protecting endangered species of flora and fauna.

(j) **Climate Change Effects**

As a project that protects the trees and native vegetation, the project is considered to be beneficial in reducing GHG. Climate change could have negative effects on the conservation easement ecosystem resulting from both timing and intensity in rainfall.

(k) **Reducing GHG compared to Project Alternatives**

Not applicable, there are no project alternatives.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

Not applicable, no SWP water is affected by this project.

4.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Project has the potential to benefit water quality leading to potential decreases in treatment costs downstream for potable supplies. Given uncertainty of location of WTPs, if any, and the small amount of change, the change in treatment operations cannot be quantified. Project also has some flood attenuation benefits which are also unquantifiable. Water savings can be avoided by assuming that the easement will prevent development over the conserved area. The savings of 13,280 AFY of groundwater pumping assumes a low 1.6 AF per acre per year to account for existing water uses and future conservation if development were to occur.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

A detailed impact and benefits analysis exists from the 2013 Prop 84 Grant submittal not awarded.

4.5.3 ***Plan Performance and Monitoring***

(p) **What is Proposed Methods of Monitoring Project Performance**

Monitoring will take place in perpetuity to ensure lands are protected in accordance with the conditions of the conservation easement.

4.5.4 ***Financing Strategies***

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

Current funding is as follows:

- Landowner contributions ($2,121,785)
- Wildlife Conservation Board ($2,100,000)
- Other funds to be secured ($4,268,555)

(r) **Funding Mechanisms, Including Water Rates, etc.**

Proposed funding expected to come from both private and public grant programs. No long term fee or rate program is anticipated.

(s) **How O&M Costs for Projects will be Covered**

A nominal annual cost is anticipated for road and trail maintenance, and is likely to be paid through volunteer resources and monies provided to the Land Conservancy through donation or other similar programs.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCNT_ECO2	Attiyeh Ranch Conservation Easement	>$5M	Landowner contributions ($2,121,785) Wildlife Conservation Board ($2,100,000)	Contributions are Definite	Land Conservancy of San Luis Obispo County will maintain easement in perpetuity using annual operating funds received as donations and …
			Grant Monies or Other Monies to be Secured	None	

4.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Not applicable for this project.

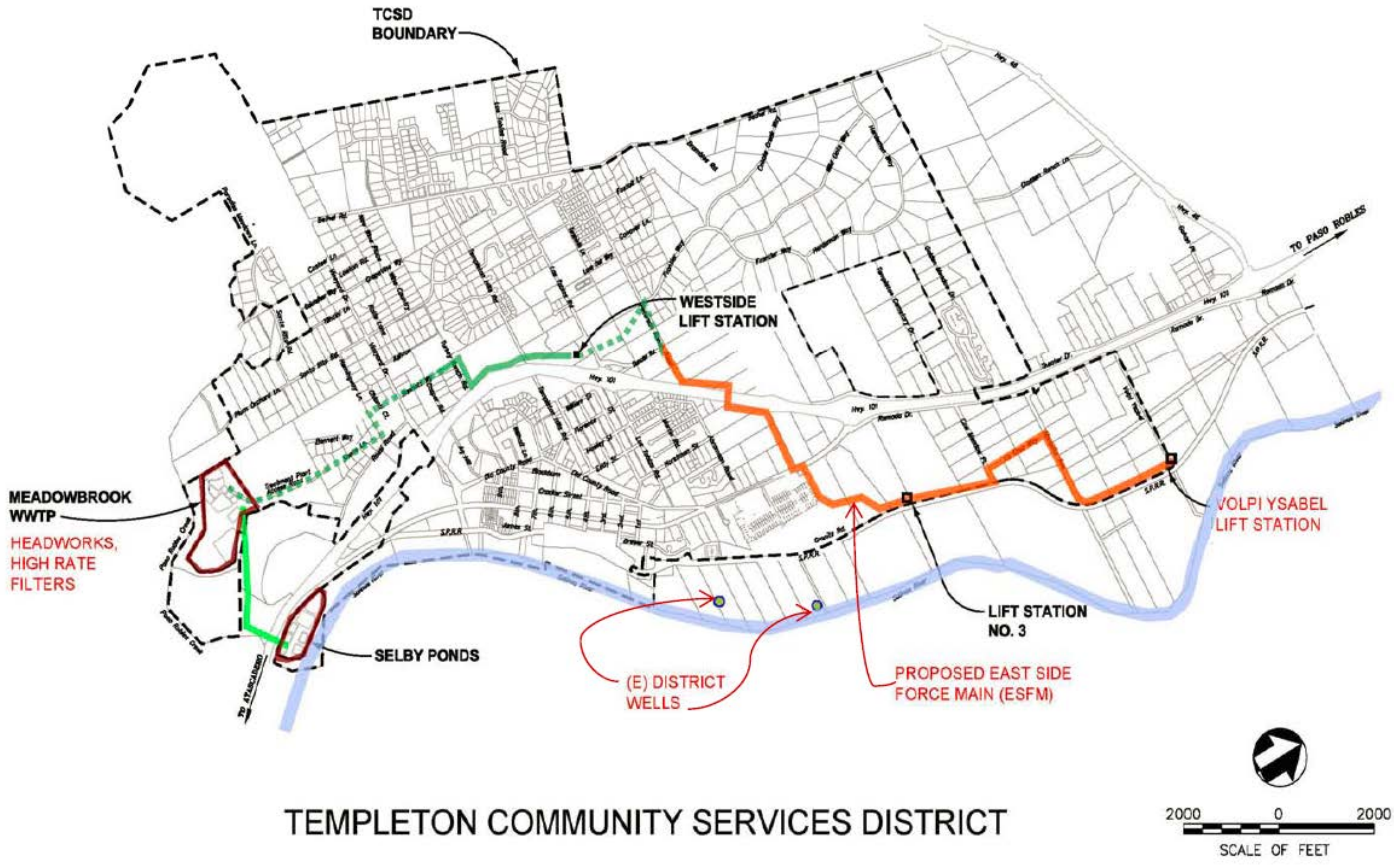
Project 5. Upper Salinas River Basin Water Conservation/Conjunctive Use Project

5.1 Project Number: NCNT_GWM1

5.2 Project Location: North County

5.3 Project Sponsor: TCSD

Templeton CSD



UPPER SALINAS RIVER BASIN WATER CONSERVATION/CONJUNCTIVE USE PROJECT

Source: Templeton CSD

5.4 Project Summary:

The Templeton Community Services District (TCSD) currently utilizes two wastewater treatment and disposal options. The proposed Upper Salinas River Basin Water Conservation/Conjunctive Use Project proposes to

utilize the entire wastewater generated by the TCSD to **augment local water supplies** for beneficial use within the community. The project has a number of distinct components that make up the entire project. For ease of explanation, they are broken down below as follows:

1. The **East Side Force Main and Lift Station Project** (ESFM Project) stops all conveyance by TCSD of any wastewater to the Paso Robles WWTP where the treated wastewater is currently discharged to the Salinas River.

2. **Pipeline construction along a 2.4 mile** corridor proposes to re-route the treatment and disposal location of approximately 220,000 gallons per day ("gpd") of wastewater on average, previously conveyed to the Paso Robles WWTP, to the Meadowbrook wastewater treatment plant (WWTP) and Selby Percolation Pond Facility (Selby Ponds).

3. Treated wastewater conveyed to the Selby Ponds is percolated into the Salinas River underflow (highly transmissive soils underlying the Salinas River laid down over hundreds of years), and retrieved downstream by shallow TCSD wells[2] where it becomes available for community use. Once the new lift stations and force mains are completed, and the Meadowbrook WWTP is operating under optimum conditions, the goal is to **ensure that the highest quality water is percolated into the underflow of the Salinas River**.

4. To **improve the water quality** effluent further, high rate filtration, such as tertiary treatment will be added. This additional level of treatment will be required in the future based on the need to improve the percolation rates, **recycled water needs within the basin**, and to meet anticipated regulatory requirements. This additional treatment would also improve the percolation rate of the treated wastewater at the Selby ponds. This step will position the TCSD for future compliance with Title 22 regulations and **provide the ability to provide recycled to customers for irrigation**.

5. While current and future flow estimates that include the proposed return wastewater flows are considered in the design of the West Side Lift Station, actual facility operations and equipment will need to be upgraded to meet the returned wastewater flows. T**he West Side Lift station, as well as the collection system downstream of the discharge point (Peterson Ranch Rd.) of the Project, will be upgraded to accommodate current and the increased future wastewater flows**.

6. The Meadowbrook WWTP currently utilizes a manual bar screen to prevent large debris from entering the AIPS pond system. At the current flows, the bar screens are generally cleaned once per day. If the screens are not cleaned frequently enough, or a surge of inorganic materials is sent to the wastewater plant, a dam may form on the screen, causing a backup into the headworks. This could cause an overflow, sending unscreened influent to the ponds. With the additional flows anticipated to reach the WWTP with the project, an increase in screening capacity will be required along with the necessity for an automated system. **An improvement in screening will improve the overall performance of the plant by preventing a larger percentage of inorganic debris from entering the**

[2] The water is retrieved via groundwater wells not under the influence of surface water. FUGRO evaluated the conveyance loss at 2%. Decision 1585 does not apply for use of treated wastewater under California Water Code section 1210. Any reduced discharge in the Salinas River as result of this project has been addressed under CEQA.

process and increasing employee safety. This component will ensure system reliability, regulatory compliance and assist in meeting water quality objectives. **Construction of a new Meadowbrook WWTP Headworks** is recommended as an integral component of the overall project.

Available Source Documents: *Templeton Community Plan*

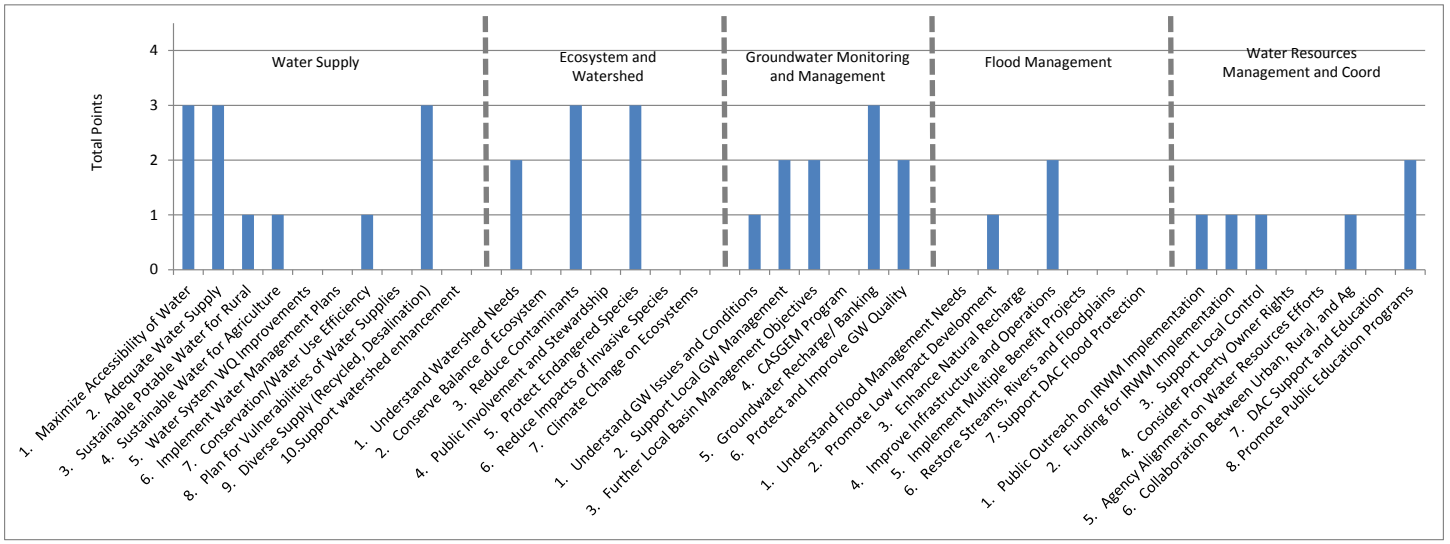
5.5 IRWM Plan Section Information and Analysis:

5.5.1 *Project Solicitation and Ranking*

How does the project:

(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:



Water Supply – **Maximize Accessibility of Water**

Project implementation results in higher beneficial use for treated wastewater. Conservation and conjunctive use will be achieved through improved and increased percolation of treated wastewater into the underflow of the Salinas River where it can be retrieved downstream, offsetting the need for new groundwater wells to meet supply demands and moving forward in ultimate recycled water use for outdoor irrigation. Actual use of recycled water is not an element of this project.

Adequate Water Supply

Project enhancement of increased discharge of an improved quality of treated wastewater being percolated into the underflow of the Salinas River will increase the availability of groundwater and surface water supplies to communities reliant on the groundwater basin and Salinas River for use as a water supply for urban, ag, and rural. As a supplemental water conservation and conjunctive use enhancement project, more water is maintained in-basin.

Diversify supply (Recycled Water)

Project is producing a large step toward ultimate use of treated wastewater as a source for outdoor irrigation in the Templeton Community.

Ecosystem – **Reduce Contaminants**

Project will reduce the treated effluent stream (point source of contaminants) from the Paso Robles WWTP to the Salinas River through creating an alternative method of treatment, increasing water quality, and disposal, through percolation to groundwater supplies.

Protect Endangered Species

Any improvement to water quality in the Salinas River has the potential to protect endangered species of flora and fauna downstream. The project will achieve zero discharge to fresh water streams. Loss of discharge flows directly into the Salinas River is expected to be made up from increased reservoir releases and increased growth in the City of Paso Robles.

Groundwater Management – **Groundwater Recharge/Banking**

The Project is a water conservation and conjunctive use solution, keeping groundwater pumped by the CSD in-basin for use as a supplemental source and as a source of supply for shallow underflow wells with the potential to offer water savings through future water recycling.

Secondary Objectives

Because the project is taking place at a local level with the CSD, the project is considered to have local control with implementation and financing also at the local level with state or federal assistance grants or loans. The merits of the project as an educational tool and use as a model for similar small groundwater communities have the potential for long term benefits on a regional scale. The vision of recycled water use and planning for this eventuality in the project design is a significant project feature.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Increase Water Supply • Improve Water Quality	• Conjunctive Management Pollution Prevention • Water Conservation	• Water and Wastewater Treatment • Water Supply Reliability • Groundwater Management	• Develop and improve water and wastewater treatment facilities to reduce point source discharges of contaminants to natural streams. • Develop and Improve methods of water reuse within a community. • Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies.	• Maximize accessibility of Water • Adequate Water Supply • Diversify Supply • Reduce Contaminants • Protect Endangered Species • Groundwater Recharge/Banking

(c) **Technical Feasibility and Justification**

The Templeton Community Services District (TCSD) currently utilizes two wastewater treatment and disposal options. Approximately 220,000 gpd are sent to the Paso Robles WWTP for treatment and disposal directly to the Salinas River, and the remainder of effluent (150,000 gpd) is treated by the TCSD Meadowbrook WWTP and discharged at the Selby Ponds where the treated wastewater percolates into the shallow aquifer system and the Salinas River underflow (highly transmissive soils underlying the Salinas River laid down over time). The TCSD already has the permitted capacity to treat 600,000 gpd of wastewater at its Meadowbrook WWTP and discharge the treated wastewater at the Selby Ponds, inclusive of the redirected 220,000 gpd, per existing WDR Order No. R3- 2007-0029. The proposed Upper Salinas River Basin Water Basin/Conjunctive Use Project proposes to utilize the entire wastewater generated by the TCSD to augment local water supplies for beneficial use within the community. The project has a number of distinct components that make up the entire project. For ease of explanation, they are broken down below as follows:

- East Side Force Main and Lift Station Project (ESFM Project):
- Cessation of conveyance by TCSD of any wastewater to the Paso Robles WWTP where the treated wastewater is discharged to the Salinas River;
- The Templeton Community Services District (TCSD) proposes to re-route the treatment and disposal location. Pipeline construction along a 2.4 mile corridor;
- Concurrently with the planning and development of the East Side Force Main and Lift Station Project (ESFM Project), the Meadowbrook WWTP is undergoing intensive study and evaluation to optimize the treatment and quality of the effluent. Once the new lift stations and force mains are completed, the operation of the Meadowbrook WWTP will be operating under optimum conditions. The goal is to ensure that the highest quality water is percolated into the Salinas River Underflow.
- Tertiary treatment at the WWTP will also be added to provide an additional level of treatment required to improve the percolation rates, meet future recycled water needs within the basin, and to meet anticipated regulatory requirements.
- While current and future flow estimates are considered in the design of the West Side Lift Station, actual facility operations and equipment are to be upgraded to meet the increase in wastewater flows. The West Side Lift station, as well as the collection system downstream of the discharge point (Peterson Ranch Rd.) of the Project, will be upgraded to accommodate current and planned future wastewater flows.
- The Meadowbrook WWTP currently utilizes a manual bar screen to prevent large debris from entering the AIPS pond system. An improvement in screening will improve the overall performance of the plant by preventing a larger percentage of inorganic debris from entering the process and increasing employee safety. This component will ensure system reliability, regulatory compliance and assist in meeting water quality objectives.

The Templeton Community Services District and the surrounding Atascadero Basin will be affected and benefit by the project because this project will increase the return flow of treated wastewater to percolate into the underflow of the Salinas River for subsequent retrieval of downstream wells. This alternate sustainable use will provide new water to supplement existing supplies and allow for better water management practices in the Atascadero Basin.

The TCSD currently provides water and wastewater service to customers within the Templeton service area

and to specific wastewater customers outside the service area with user agreements. The County of San Luis Obispo (SLO) determines land use zoning in the existing Land Use and Circulation Element and the Land Use Ordinance. Land use designations are used to project current and future water demands and wastewater flows in the TCSD. As the service provider for the Templeton Community, the TCSD must find sustainable water supplies to meet the projected demands required by SLO County land use regulations. The existing service area currently contains 76 percent of the total build out of residential units, and 23 percent of the total build out of non-residential square footage. Additional water supply is needed that can be attained through this project to assist the CSD in meeting these land use goals established by the County. This project will improve the sustainability of existing supplies for Templeton and its neighbors in the Atascadero Basin.

The major hurdles have been eliminated. The project has received approval of a wastewater change petition, State Water Resources Control Board Order No. WW-0065, and completed all required CEQA environmental review. The project funding needed for implementation is for 50% of the total project cost and the potential obstacle to project implementation is the need for supplemental funding. In order to make the project affordable for the community grants and low interest loans are being sought.

The total estimated cost is $10.4 Million with an estimated $500,000 per year in O&M costs. Sources of funding will include grants, loans, existing reserves and TCSD water and/or wastewater rates.

(d) **Benefit DACs**

The community of Templeton is not a DAC.

(e) **Environment Justice**

No low income areas are to be impacted by this project either through the construction phase or the operational phase.

(f) **Cost and Financing**

Of the project's $10.4 Million cost, TCSD is seeking all state and federal grant and special loan programs. The TCSD considered several methods of funding. The District looked at revenue bonds, loans from private sources, and federal and state loans. Because the District is too small and without a credit rating, it is difficult to obtain self-financing from these sources.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D3 – Monetized Benefits Analysis has been selected based on the potential grant amount and the ability to monetize the benefits in terms of an annual dollar value for each year of the project's operation. TCSD benefits are to be expressed as the cost of water saved by percolating treated wastewater into the underflow of the Salinas River where it becomes available for retrieval by downstream wells, saving the cost of drilling new wells and/or purchasing additional water supply. Additional benefits include any decrease in cost for wastewater treatment at existing Paso Robles WWTP. Benefits associated with Water Quality improvements to the Salinas River are difficult to monetize.

Upon notice of available funding opportunities, a full cost benefit analysis will be performed.

(h) **Project Readiness to Proceed**

The Project as described above is already underway as of 2012 with a Mitigated Negative Declaration for

construction of the pipeline. The project has already been publically vetted and substantial planning, environmental, feasibility, and design work has already been conducted. This project is ready to move forward pending the ability to cost effectively finance the project. The small size of the Templeton community requires additional financial assistance to make this a successful project.

(i) **Strategic Implementation of the Plan and Project Merit**

This project provides for the opportunity to educate the public on the water system within the TCSD and the surrounding areas and the importance of protecting the local ecosystem and public lands, given the opportunity to return water resources back into the local ecosystem. Colorful graphics and public outreach will illustrate the water cycle and how it begins with TCSD wells, goes out to serve TCSD customers, and is sent to the wastewater treatment plant, after which the recycled water is returned back into the environment via the pipeline and percolation basin.

(j) **Climate Change Effects**

This project is not anticipated to have Climate Change Effects. Energy costs will be kept low by optimizing the efficiency of the passive wastewater treatment system and using variable frequency drive pumps and other equipment that has improved energy efficiency ratings. The pump station will produce an estimated ___ of GHG emissions off-set by energy efficiency measures taken in other elements of the system.

(k) **Reducing GHG compared to Project Alternatives**

The no project alternative, staying at Paso Robles WWTP with expansion improvements, will likely have higher GHG emissions than the preferred project alternative.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

Not Applicable. No SWP is used by the TCSD

5.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

The Project will have a decrease in the Paso WWTP energy costs, but results in an increase in energy use for additional wastewater treatment at Meadowbrook WWTP, conveyance pumping energy use, and recovery well energy use. The value of water used by the project is for well pumping only since treatment and conveyance are assumed to be a net zero energy cost.

The project does reduce summer flows in the Salinas River by reducing the Paso Robles WWTP discharge. This, however, was environmentally reviewed; and no significant adverse impacts were identified. TCSD sought and obtained approval from the State Water Resources Control Board for the change. The Contract between the TCSD and Paso Robles provides that the TCSD retains ownership of the wastewater; and TCSD claims rights to their wastewater pursuant to California Water Code section 1210 et seq.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Project specific impacts analysis has already been performed with CEQA compliance and certification of a Mitigated Negative Declaration. Additional Impact and Benefit analysis will be performed as part of any grant funding requirement.

5.5.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

Physical benefits will be quantified and a monitoring program will be developed to ascertain benefits of the project over a 10 year time span.

5.5.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs, such as:

(q) **Known and Possible Funding Sources**

The TCSD considered several methods of funding. The TCSD looked at revenue bonds, loans from private sources, and federal and state loans. Because the TCSD is too small and without a credit rating, it is difficult to obtain funds from these sources. The TCSD will self-fund a significant portion of the project including environmental studies, land surveys, geotechnical and hydrogeologic studies, feasibility studies, engineering design and construction plans and specifications. If the grant is not obtained, other sources of funding will continue to be sought.

(r) **Funding Mechanisms, Including Wastewater Rates, etc.**

TCSD wastewater rates and fees will be used for long term operations and maintenance. Project construction costs are estimated as follows:

- Approximately 45 percent of the project funding is coming from Templeton CSD's proposed revenues provided by rate increases as per Wastewater Rate Update Study, by Perry Louck dated July 27, 2013, and have been adjusted to accommodate this level of funding.
- Approximately 10 percent of the project funding is coming from Templeton CSD's existing rates and revenues.
- The remaining amount of 45 percent is being sought through grant funding programs.

(s) **How O&M Costs for Projects Will Be Covered**

O&M will be funded through wastewater rates paid by existing and future customers.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCNT_GWM1	Upper Salinas River Basin Water Conservation/Conjuntive Use Project	>$5M	Project construction costs are estimated as follows: • Approximately 45 percent of the project funding is coming from Templeton CSD's proposed revenues provided by rate increases as per Wastewater Rate Update Study, by Perry Louck dated July 27, 2013, and have been adjusted to accommodate this level of funding. • Approximately 10 percent of the project funding is coming from	Contributions are Definite	Templeton CSD can support project operations, maintenance, and replacement costs in perpetuity

			Templeton CSD's existing rates and revenues.		
			Grant Monies (Prop 84, 3rd Round; Water Recycling Grants; WaterSMART Program; Construction Funding Program, if qualifies),	None	

5.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Not applicable. Project is already permitted and beyond the alternatives analysis phase. No evidence of GHG emission analysis is available.

Project 6. Community Based Social Marketing (CBSM)

6.1 Project Number: NCNT_WMT1

6.2 Project Location: North County

6.3 Project Sponsor: US-LTRCD

Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)

6.4 Project Summary:

Severe water supply shortages and TMDL listings show that residents in the Paso Robles Groundwater Basin require urgent outreach to bring an understanding of how residents can participate in creating solution-oriented behavior changes for **water conservation** and **basin sustainability**.

The US-LTRCD plans to **implement a community-based social marketing campaign** (CBSM) to address **water quality as well as quantity**. This pragmatic approach involves an **interactive program** identifying the barriers to a behavior that is debilitating to the Paso Robles Basin, developing dynamic and synergistic programs (and/or existing programs) to overcome these barriers, implementing an **interactive program of education and outreach** across the communities within the basin area and then **evaluating the effectiveness of the program by tracking and establishing if behavior changes** have occurred. The more direct involvement with the communities in the Paso Robles Basin area, the more we will foster more sustainable behavior. By developing and implementing this program, individuals, businesses and the agricultural community will be **educated on the cause/effect relationship** with actions within the homes and within business and farm practices that harm and deplete the area's water supply. This education will be paired with practical ways on how these behaviors can be modified to **directly support the mission of reducing greenhouse gas emissions, water conservation and preservation while positively impacting climate change**.

Available Source Documents: *County General Plan Conservation and Open Space Element; Agriculture Element*

6.5 IRWM Plan Section Information and Analysis:

6.5.1 *Project Solicitation and Ranking*

How does the project:

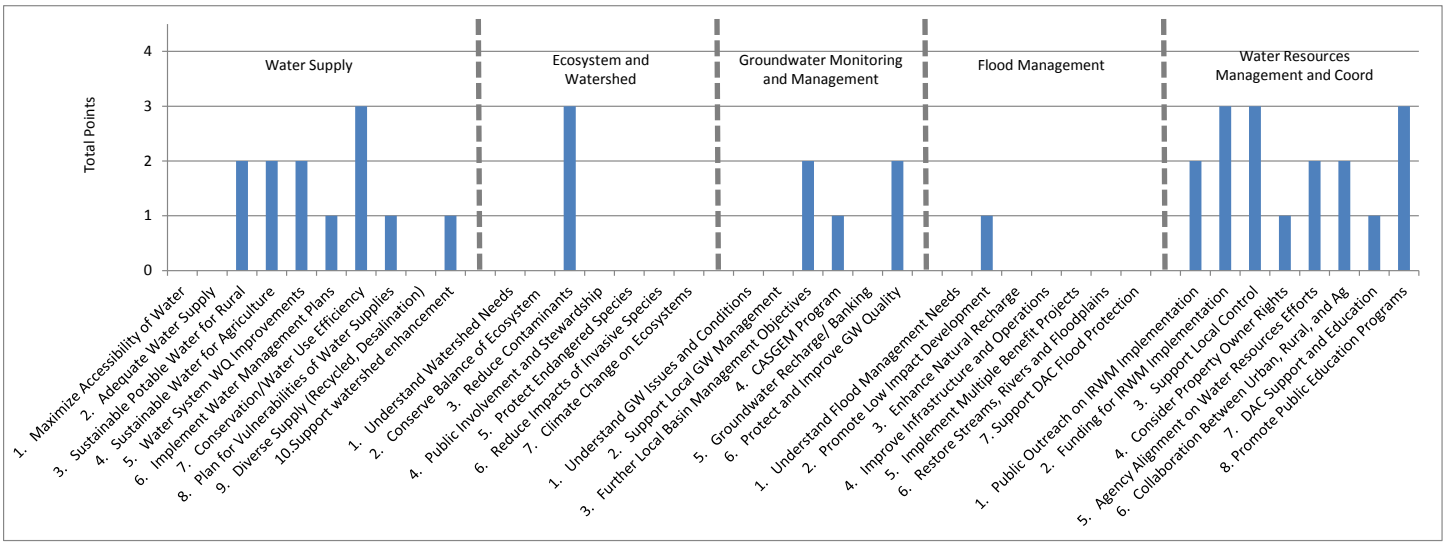
(a) **Contribute to Plan Objectives**

Project fully satisfies the following Objectives: [Carolyn - when set side by side with a structural project, this project is very small and does not guarantee success in meeting the Objectives; however, the merits of the program are of sufficient value to include the Objectives which apply. If phased, this program could satisfy additional objectives in the future.]

Water Supply – **Conservation/ Water Use Efficiency**

While limited in scope and depth of penetration through non-structural methods, the CBSM targets a large

interested audience through education and outreach on ways to improve water conservation and efficiency in how water for the urban, ag, and rural sectors of the Paso Basin.



Ecosystem – **Reduce Contaminants**

Using education as the primary tool, the CBSM seeks to change people's habits and ways of doing business to become more eco and water resources friendly. Meeting the Reduce Contaminants Objective typically requires some sort of structural change to make a difference in reducing contaminants; however, the anticipated widespread education and outreach is assumed to make an appreciable reduction in water pollutants.

Water Resources Management – **Funding for IRWM Implementation**

The project scale, cost and expected benefits are well balanced to succeed in achieving outside funding on behalf of landowners in the US-LTRCD.

Support Local Control

The program targets entire water sectors to assist them in their stewardship of constrained water resources in the Paso Basin. All efforts and decisions will take place at the local level with county-wide visibility.

Promote Public Education

The program will create public education forums, exhibits, and materials to bring awareness to other IRWM planning regions (i.e., North Coast and North County).

Secondary Objectives

The CBSM program has an abundance of public visibility and education opportunities for the IRWM region overall. Although difficult to quantify, water quality benefits could be significant if programs take hold in the community and grow over time. Improvements to drinking water supplies and environmental instream benefits can be achieved as well.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Improve Water Quality • Practice Resources Stewardship • Demand Reduction	• Pollution Prevention • Watershed Management • Urban Water Use Efficiency	• Environmental and Habitat Protection • NPS Pollution Control • Water Conservation • Economic Incentives	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Provide public incentives to gain volunteer change in on-site water use and handling practices.	• Conservation and Water Use Efficiency • Reduce Contaminants • Funding for IRWM Implementation • Support Local Control • Promote Public Education

(c) **Technical Feasibility and Justification**

Water is a finite resource and many regions of the County are experiencing diminishing water supplies due to increasing development and prolonged drought conditions. Most specifically, severe water supply shortages and TMDL listings show that residents in the Paso Robles Groundwater Basin require urgent outreach to bring an understanding of how residents can participate in creating solution-oriented behavior changes for water conservation and basin preservation. The success of community-based social marketing campaign (CBSM) is to identify and understand the barriers to develop and implement projects and programs. This step is critical in understanding and addressing the behaviors that negatively impacts the Paso Robles Groundwater Basin.

The CBSM specifically addresses water quality issues and provides strategies to reducing pollution sources as applicable. CBSM fosters collaborative efforts between community residents by engaging agricultural, residential and business interests and provides a solution based tool kit for both individual and combined efforts.

US-LTRCD will be partnering with other agencies to maximize/share resources and help reduce overall costs, plus reach out to companies and/or other organizations to help financially support the CBSM program. However, additional funding is necessary to provide consistency and strength in project implementation. The expected start-up cost is estimated to be $34,400 with an additional labor cost over 1-2 years of $137,700.

(d) **Benefit DACs**

Not applicable.

(e) **Environment Justice**

No low income communities will be impacted by this program.

(f) **Cost and Financing**

$34,400 in capital costs

$137,700 in labor costs over 1-2 years.

(g) **Feasibility through Economic Analysis**

A cost effectiveness economic analysis has not been completed for this project. The project has an indirect cost of reducing the cost to pump and treat water. Of the DWR methods for quantifying benefits, method Section D1 – Cost Effective Benefits Analysis will likely be selected to evaluate if the program is being implemented at the least possible cost.

(h) **Project Readiness to Proceed**

Project is ready to proceed once funding is acquired.

(i) **Strategic Implementation of the Plan and Project Merit**

The CBSM is considered as a starting point to a much larger program of incentive marketing of conservation and on-site management practices that lead to a high benefit-cost ratio. By taking the first step of studying the people's acceptance of the various water conservation and quality programs, the next step will likely include the introduction of structural features, new technology and inter agency agreements.

(j) **Climate Change Effects**

No appreciable effects to Climate Change are anticipated as a result of implementing the CBSM.

(k) **Reducing GHG compared to Project Alternative**

No alternatives analysis to be performed.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

The CBSM will not have a direct effect on the use of SWP, but may, in the future, lead to projects which import SWP to the Paso Basin when available, and when not constrained by the Delta.

6.5.2 *Impact and Benefit*

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Project is mostly educational resulting in change in water quality and quantity over a long period of time. The increase in both is too small to quantify at the expected level of implementation.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Not applicable at this stage in the program.

6.5.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

Monitoring will likely be qualitative in terms of the amount of water conserved or the improvements in water quality. The project will maintain a record of which practices are succeeding in terms of public acceptance and volunteer implementation. This includes a measure of perceived (i.e. doing good for the environment and water) and realized (i.e., economic savings through reduction in energy or chemical costs) public incentives through program implementation.

6.5.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

Support from state, federal and local grants are being sought for funding. In-kind services will likely be used for local cost share or match dollars.

(r) **Funding Mechanisms, Including Water Rates, etc.**

None.

(s) **How O&M Costs for Projects will be Covered**

Annual implementation costs of the program will be funded through an escrow account setup through grant funding sources.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCNT_WMT1	Community Based Social Marketing	<$250K	Local Contributions through Donations and In-Kind Services (US-LTRCD)	In-kind labor from sponsoring agencies and reporting costs are fully funded	Not Required
			Grant Monies (Prop 84, 3rd Round; USEPA Watershed Grant Program)	None	

6.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Not applicable.

Project 7. Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices

7.1 Project Number: NCNT_WMT2 and NCNT_WMT3

7.2 Project Location: North County

7.3 Project Sponsor: Vineyard Team and US-LTRCD

Vineyard Team and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)[3]

Source: <http://westernfarmpress.com/grapes/dry-winter-triggers-early-irrigation-start>

7.4 Project Summary:

Irrigated agriculture is a large user of water and energy in San Luis Obispo County. This program **develops benchmarks for energy and water conservation** by identifying through **pump efficiency and irrigation distribution uniformity analysis** poorly performing irrigation systems. Applications will be accepted from **growers willing to cost share system components**, **adjust management practices, and share findings and conclusions with the public.** The Center for Irrigation Technology and Advanced Viticulture will aid in experimental design and control. Soil moisture meters and weather stations will be installed on 5 North

[3] The Vineyard Team project titled, "Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin," was combined with the US-LTRCD project given the similarities of the two projects and willingness to move forward together in the project's implementation.

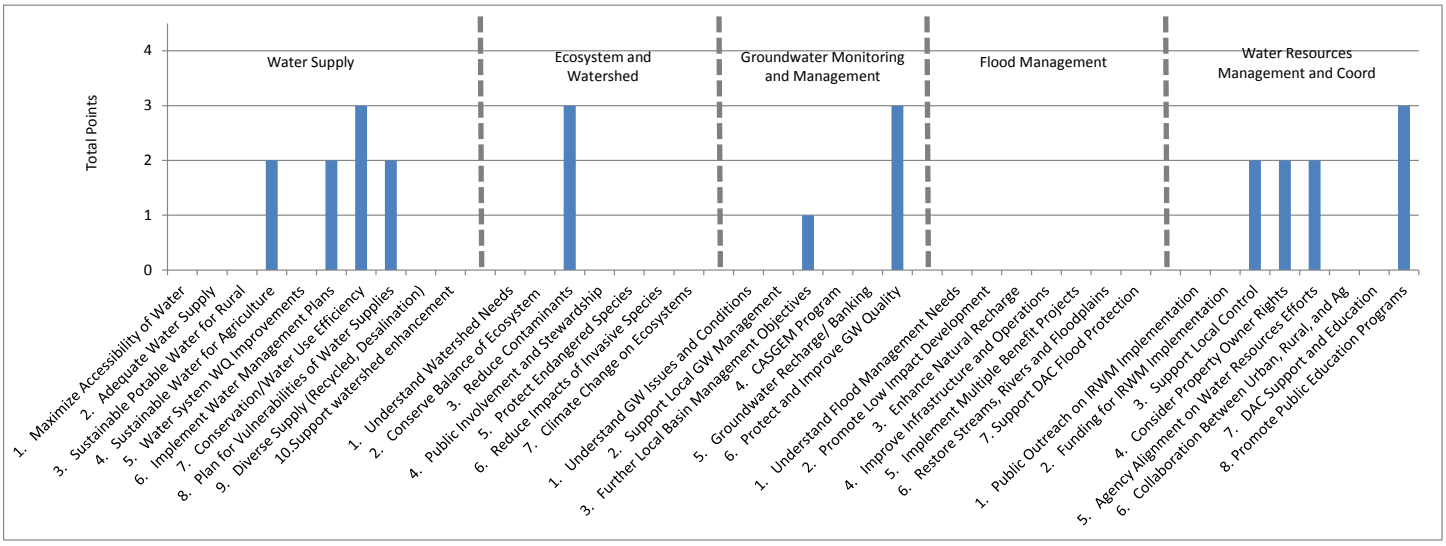
County sites. The sites will be monitored for 2-3 growing seasons, and system performance evaluated by **changes in crop yields, and water and energy use**. The findings of this project will be made available to the public by reports, website outreach, and workshops generated by the US-LTRCD, Vineyard Team and Stockman's Energy. **Growers who receive the systems will be able to keep the equipment, but will be required to pay for any ongoing costs after the research has been completed.**

Available Source Documents: *County General Plan Conservation and Open Space Element; Agriculture Element*

7.5 IRWM Plan Section Information and Analysis:

7.5.1 *Project Solicitation and Ranking*

How does the project:



(a) **Contribute to Plan Objectives**

Project fully satisfies the following Objectives:

[This project hints at being a Research Project vs. and Water Conservation Program. I think we need to stay away from Research Project and couch as a conservation program with monitoring and reporting.]

Water Supply - **Conservation/ Water Use Efficiency**

Provide education and expose new technologies to agricultural growers for the purpose of providing the precise amount of water needed for healthy plant growth and reducing water use during peak growing seasons.

Ecosystem and Watershed Restoration – **Reduce Contaminants**

Through improved technology, precise water requirements can be applied and thereby reduce the release of contaminants through runoff due to over irrigation. Groundwater also benefits due to ensuring irrigation does not exceed consumptive crop uses, allowing fertilizer-bearing water to percolate to shallow fresh water

aquifers used for drinking water.

Groundwater Management – **Protect and Improve Groundwater Quality**

By reducing excessive application of water, this program reduces one of the largest contributors of non-point source pollution to groundwater and surface water. By providing only the amount of water the plants need for crop uptake and evapotranspiration, there is less water to move off-site either by means of overland runoff (to streams which recharge the basin) or by deep percolation to groundwater supplies.

Water Resources Management – **Promote Public Education**

The program will create scientific reports, public education forums, exhibits, and materials to bring awareness to the IRWM planning regions (i.e., North County). Both the US-LTRCD and Vineyard Team maintain websites at <http://us-ltrcd.org/> and < http://www.vineyardteam.org/>, respectively. Both will be used to showcase the results of the project internationally, and reports will be compiled for interested community members.

Secondary Objectives

The targeted irrigation program has an abundance of public visibility and education opportunities for the IRWM region overall, but especially in the North County. Although difficult to quantify, water quality and economic benefits of reduced water use could lead to more efficient water use in the larger agricultural community and grow over time. Other improvements include: improved drinking water quality, environmental instream benefits and healthier ecosystems, and reduction in invasive species reliant on excess nutrients in surface water.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Demand Reduction	• Agricultural Water Use Efficiency	• Water Conservation	• Provide public education in the value of conserving water for purposes of achieving sustainable surface water and groundwater drinking water supplies. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	• Conservation/ Water Use Efficiency • Reduce Contaminants • Protect and Improve Groundwater Quality • Promote Public Education

(c) **Technical Feasibility and Justification**

North County Agricultural Growers will be the main beneficiaries of this project. Through improved use of technology, precision irrigation systems increase the amount of flow, weather and soil information available to the grower, which can lead to more precise management decisions that have beneficial results on profits,

by decreased energy costs for the grower, and environmental benefits such as decreased groundwater pumping, carbon emissions and fertilizer leeching.

Widespread adoption of irrigation system BMPs can have a dramatic effect towards increasing the stability and sustainability of the Paso basin. Acceptance of these systems in the North County, can lead to their greater presence throughout all of SLO County, putting the county in a position to be a leader in sustainable, precision agriculture systems. The goal of these systems is to maximize productive yields per acre while reducing, to the maximum extent possible, negative effects on the environment. Implementation of these practices does not require large equipment costs to the farmer, and results are felt immediately serving as an economic incentive by reduced water bills.

Findings from this project will be used to validate the impacts of advanced technology and management practices. Additionally, it will help to inform energy and water conservation incentives offered by agencies and public utilities. Growers involved in the project will receive irrigation system improvements that will increase irrigation efficiency and reduce their energy and water usage over a growing season and demonstrate success to other growers. Other collaborators will get data which will be used to develop irrigation management plans that meet energy and water conservation goals.

While not targeted specifically, both public and private rural groundwater users benefit because the ultimate net effect of wide adoption of targeted irrigation practices is an increase of surface and groundwater quality and quantity. Many municipalities, rural residential and agricultural operations depend on groundwater pumping to meet their drinking water needs.

A research/demonstration site will show the benefits of these systems to the public. Data will be shared with all interested parties to share the pros and cons of the systems. Ag related non-profits can collaborate to bring these technologies to their clients. The US-LTRCD and Vineyard Team will run workshops which can be set up to show how to install and use these systems. Identification of target applied irrigation rates will allow for the study and monitoring of whether microclimate analysis can function at a county-wide scale for the purposes of establishing thresholds for conservation.

The total cost for this project is estimated to be $85,000 in capital costs and $165,000 in labor costs over three years with $5,000 in annual operations cost to monitor and report on program.

(d) **Benefit DACs**

Not applicable over agricultural areas.

(e) **Environment Justice**

No impacts to low income communities will occur as a result of this project.

(f) **Cost and Financing**

$85,000 Purchase of Irrigation Technology

$165,000 Installation labor over 3 years

Total of $250,000

$5,000 Annual monitoring and reporting

(g) **Feasibility through Economic Analysis**

A cost effectiveness economic analysis has not been completed for this project. The project has an indirect cost of reducing the cost to pump and treat water. Of the DWR methods for quantifying benefits, method Section D1 – Cost Effective Benefits Analysis will likely be selected for on-farm reduced energy benefits. The ability to assign benefits is tied to the ability to specifically measure the energy saved due to BMP implementation. The size of area anticipated for BMP implementation should be large enough to see quantifiable differences in irrigation well energy consumption.

(h) **Project Readiness to Proceed**

Project is ready to proceed once funding is acquired.

(i) **Strategic Implementation of the Plan and Project Merit**

The project is considered as a research program which could lead to a much larger program of incentive marketing of conservation. By taking the first step of studying effectiveness of the various water agricultural water use and conservation technologies, additional programs may branch out to introduce structural features, additional technology and inter agency agreements for higher utilization.

(j) **Climate Change Effects**

No appreciable effects to Climate Change are anticipated as a result of implementing the project.

(k) **Reducing GHG compared to Project Alternative**

One goal of this project is to quantify the conservation benefits of a specific practice: continuous soil and weather monitoring, using a methodology developed by Dr. Mark Greenspan, modeled after studies performed by the Sonoma County Water Agency. Alternative methods that will be investigated include the use of flow meters to measure and monitor instantaneous water use and seasonal application rates. It is expected that reducing GHG emissions will be a part of this analysis.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

Potential reduction if SWP is used as irrigation or groundwater recharge source of supply in the future.

7.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

This program will base grower program participation through the identification of inefficient irrigation systems in the North County. By definition, these inefficient systems are wasteful with their energy and water use, which will be quantified by reviewing previous years energy bills and comparing to bills after system and management upgrades are installed and implemented.

The research project relies on finding sites with land managers willing to risk productivity for increased irrigation efficiency and data resources. Growers often cite the high cost of systems as a barrier to adoption.

There is a risk factor associated with adopting an unknown technology, due to a potential for decreased yields, so a research project demonstrating the feasibility and profit potential for these BMPs, that also results in increased yields and/or fruit quality allows for greater penetration of these efforts.

Project is mostly educational resulting in change in water quality and quantity over time. The increase in both is considered to be difficult to quantify at the expected level of implementation.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Given the relatively low implementation cost and almost study nature of this project, a more thorough analysis will be provided with any grant funding requirements.

7.5.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

Actions to monitor the benefit of the project implementation will include water quality, keeping track of each method of irrigation separately in order to test their effects and quantify their benefits on both crop production and water quality. The area of implementation and amounts of water use reduction are believed to be significant enough to see a difference from baseline monitoring results taken prior to on-site program implementation.

Savings will be analyzed and reported on a per site basis, and will be compared to other sites around North County. Results will also be calculated on a per acre basis and reported along with the potential energy reduction if widespread adoption of these technologies and practices were to occur.

7.5.4 *Financing Strategies*

What is planned for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

Project is seeking grant funding along with providing local in-kind services for local match. Other partners in this project include Stockman's Energy, Center for Irrigation Technology - Fresno State University, Advanced Viticulture/Dr. Mark Greenspan.

(r) **Funding Mechanisms, Including Water Rates, etc.**

None.

(s) **How O&M Costs for Projects will be Covered**

Annual budget for US-LTRCD will cover planned O&M Costs.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCNT_WMT2	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices	$250K-$500K	Local Contributions through Donations and In-Kind Services (US-LTRCD and Vineyard Team)	In-kind labor from sponsoring agencies and reporting costs are fully funded	Not Required
			Grant Monies (Prop 84, 3rd Round; USEPA Watershed Grant Program)	None	

7.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

This project demonstrates reduced GHG emissions through water and energy use efficiency by utilizing irrigation system evaluation methods and advanced flow, soil moisture, and weather measurement technologies. Additionally, this project identifies opportunities to reduce energy waste through the application of pump efficiency testing and retrofit, energy efficient pump controls, and diesel repowering. Finally, once pumping systems are electrified and operating efficiently, the opportunity is available to utilize on-site renewable energy generation. All of these strategies support reduction of regional GHG Emissions.

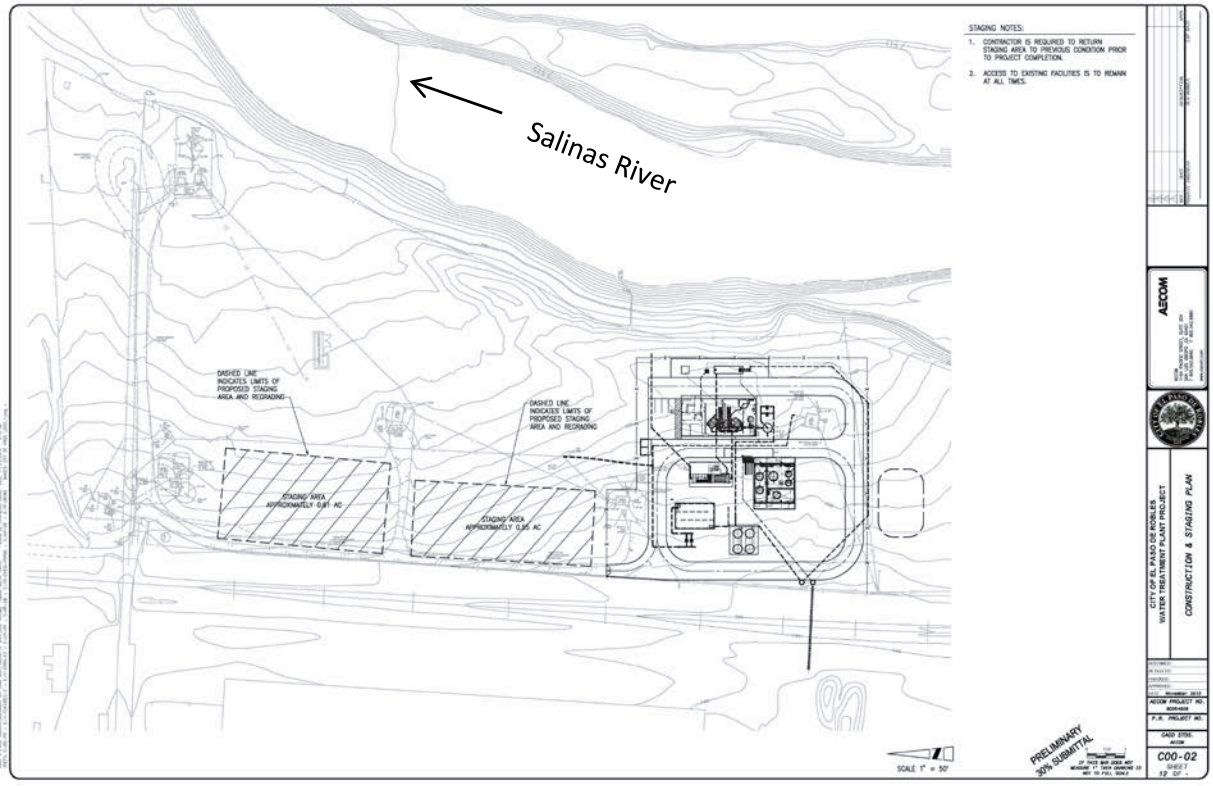
Project 8. City of Paso Robles Lake Nacimiento Water Treatment Plant Construction

8.1 Project Number: NCNT_WSP1

8.2 Project Location: North County

8.3 Project Sponsor: City of Paso Robles

City of Paso Robles



Source: Prop 84, 2013 Grant Application

8.4 Project Summary:

The City of Paso Robles currently relies on water from two sources: Salinas River underflow wells and groundwater from the deeper formation of the Paso Robles Groundwater Basin. Significant groundwater level declines in City wells and other basin wells have been occurring since the 1990's. San Luis Obispo County has certified the basin as a Level of Severity III, indicating the demand for water will equal or exceed its supply before supplemental supplies can be developed. The Lake Nacimiento Water Treatment Project will provide additional potable water for the City of Paso Robles, enabling the City to reduce groundwater pumping within the overdrafted Paso Robles Groundwater Basin.

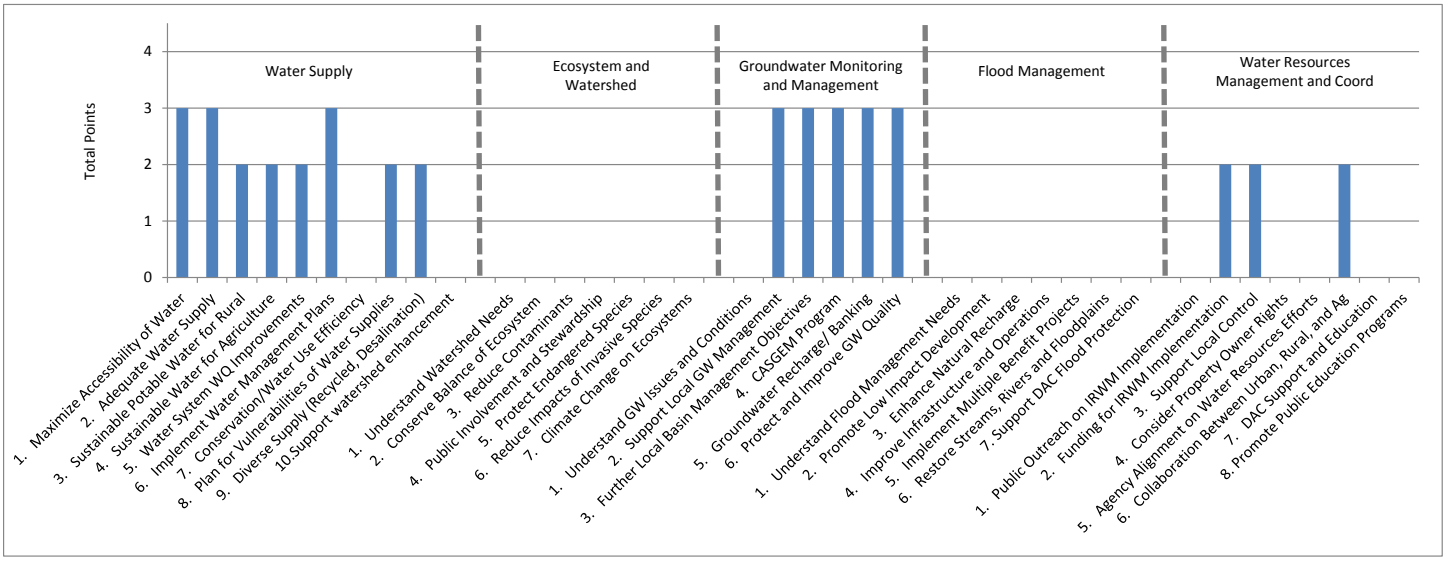
City of Paso Robles water deliveries for 2005 and 2010 were 7,163 acre-feet per year (AFY) and 5,749 AFY, respectively. Water deliveries in 2010 were much lower than 2005 deliveries because of mandatory City-wide outdoor water use restrictions implemented in 2009. Level 2 of the City's Water Conservation Ordinance and Water Shortage Contingency Plan (See Attachment) was implemented to reduce summer peak water demands and thereby manage a projected water production shortfall of 20 percent. These restrictions will be lifted when the Lake Nacimiento surface water supply becomes usable by Paso Robles. As the projected customer water deliveries are expected to increase to 12,460 AFY in 2035 (2010 UWMP).

Available Source Documents: *City of Paso Robles, General Plan; City of Paso Robles UWMP; City of Paso Robles Water Resources Plan Integration and Capital Improvement Program; Paso Robles Groundwater Basin Management Plan*

8.5 IRWM Plan Section Information and Analysis:

8.5.1 *Project Solicitation and Ranking*

How does the project:



(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:

Water Supply – **Maximize Accessibility of Water**

The project is exercising a portion of the County's surface water rights of 17,500 AFY from Lake Nacimiento. The first phase is committing to 4,000 AFY.

Adequate Water Supply

The project is ensuring sustainability of groundwater supplies and improving conjunctive use of surface water and groundwater. The frequency of severe rationing is anticipated to decrease significantly with the addition of a new supply and allowing for the ability to bank groundwater for use in the dry years.

Implement Water Management Plan

The project is a part of the region's overall vision for improving the Paso Basin critical health status. As a regional project, the benefits are expected to reach beyond the City of Paso's boundaries.

Groundwater Management – **Support Local Groundwater Management**

The project is consistent with the Paso Basin Groundwater Management Plan(s) and provides basin-wide benefits on both local and regional levels.

Further Local Basin Management Objectives

As a specific BMO in the local City of Paso Robles Groundwater Management Plan. [is there a separate City GMP as well as the basin GMP? Do we do a GHG study on the initial and potential subsequent phases of the plant?] (http://www.vineyardteam.org/files/resources/Larson,%20Keith.pdf)

CASGEM Program

The project will install dedicated monitoring wells for purposes of groundwater management and measuring the level of benefit the project is providing to the conjunctive use operations of the basin over time.

Groundwater Recharge/Banking

As a conjunctive use project, the banking of groundwater is an essential element of its success over time. The basin's recovery is the priority concern, next is sustainability at an accepted level operational level consistent with a safe sustainable yield of the basin overall, and then managing the levels over time to not exceed the yield and levels.

Protect and Improve Groundwater Quality

The project is a means of halting the declining groundwater elevations and keeping the upwelling of high TDS groundwater into drinking water aquifers.

Secondary Objectives

The project is one of many necessary projects to fully maximize the available surface water in the Paso Basin. Projects of this type and magnitude realize regional benefits reducing on-going conflict between urban, agriculture, and rural groundwater users. While growth is an element of this project, the reduction of groundwater use addresses the existing problem. In this case, growth will be paying for further expansion over time.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Increase Water Supply • Improve Water Quality	• Drinking Water Treatment and Distribution • Pollution Prevention	• Water and Wastewater Treatment • Water Supply Reliability • Water Quality Protection and Improvement • Groundwater Management	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Implement groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	• Maximize Accessibility of Water • Adequate Water Supply • Implement Water Management Plans • Support Local Groundwater Management • Further Local Basin Management Objectives • CASGEM Program • Groundwater Recharge/ Banking • Protect and Improve Groundwater Quality

(c) **Technical Feasibility and Justification**

The City of Paso Robles's water supply is subdivided into two sources according to water rights. These are Salinas River underflow and percolating water of the Paso Robles Groundwater Basin. Salinas River underflow refers to shallow groundwater in direct hydraulic connection with the Salinas River. This underflow is subject to appropriative surface water right and permitting by the State Water Resources Control Board (SWRCB). An approved SWRCB application (Application filed 1941; Permit number 5956 issued November 6, 1981) allows the City of Paso Robles to extract up to eight cubic feet per second (cfs or 3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31). The river wells typically account for approximately half of the City of Paso Robles's current supply (table below).

Since 2005, the City of Paso Robles's use of underflow has ranged between 84% and 99% of the full appropriation; the maximum annual underflow well production was 4,558 AF (2005) and the minimum was 3,868 AF (2009). The City of Paso Robles is considering additional wells near the river to optimize pumping. Future operation of the underflow wells will involve an optimum pumping plan that limits instantaneous flow rates to eight cfs while maximizing the permitted annual production of 4,600 AFY.

The second source of supply for the City of Paso Robles are the twelve wells that extract water from the Paso Robles Groundwater Basin. These wells typically account for less than half of the City of Paso Robles's groundwater supply. The basin is the primary shared water source for municipal, rural residential users, and the extensive agricultural lands in North County Subregion of San Luis Obispo County. Many well owners, including the City of Paso Robles, have suffered a significant reduction in well capacity or had their wells go dry. The City of Paso Robles has regularly experienced seasonal water supply shortfalls since the mid-2000s. Mandatory summer outdoor water use restrictions have been in place in Paso Robles since 2009. The City of Paso Robles identified the need for supplemental water supplies to meet current and future needs in its 2000, 2005, and 2010 Urban Water Management Plans (plans on file at DWR).

In 1959, the San Luis Obispo County Flood Control and Water Conservation District (District) signed an agreement with Monterey County Water Resources Agency that entitled the District to 17,500 AFY of the annual yield of Lake Nacimiento for uses in San Luis Obispo County. In 2004, the District entered into Nacimiento Project Water Delivery Entitlement Contracts with the City of Paso Robles, San Luis Obispo County, Templeton CSD, Atascadero Mutual Water Company, and the City of San Luis Obispo, to construct the Nacimiento Water Project to deliver untreated lake water (Water Delivery Entitlement Contract 2004). These communities have committed to take delivery of 9,655 AFY, with the City of Paso Robles committing to 4,000 AFY at this time. Commitment of the remaining supply is being considered by these and other water agencies, including the City of Paso Robles. The Nacimiento Water Project began delivering water in 2011.

The City of Paso Robles Lake Nacimiento Water Treatment Plant project includes the construction of a potable water treatment plant necessary to begin taking its water allocation. With delivery of Nacimiento water, the City of Paso Robles can significantly reduce pumping from the Paso Robles Groundwater Basin. Looking ahead, the City of Paso Robles projects increased deliveries (using groundwater) to meet increasing demand, to about 3,400 AFY. This volume is less than was pumped by the City of Paso Robles in 2008 prior to mandatory landscape watering restrictions being implemented. However, the City of Paso Robles continues to consider alternative supplies including additional supply from Lake Nacimiento and recycled water.

(d) **Benefit DACs**

The City of Paso Robles is not a state certified DAC.

(e) **Environment Justice**

Project does not pose any risk or environmental degradation to low income area.

(f) **Cost and Financing**

Paso Robles's City Council approved the water rate increases necessary to fund the construction and operation of the water treatment plant project. The Prop 218 process was completed in 2011 and water rates are in place.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D3 – Monetized Benefits Analysis has been selected based on the grant amount and the ability to monetize the benefits in terms of an annual dollar value for each year of the project's operation. Project benefits are to be expressed as the cost of water saved by not having to import SWP, or other, water or construct a desalinization water treatment plant.

(h) **Project Readiness to Proceed**

Project is in the implementation phase with planned completion by end of 2015.

(i) **Strategic Implementation of the Plan and Project Merit**

Project is considered as large step toward bringing a solution to Paso Basin critical condition with declining groundwater elevations, higher pumping costs and energy usage in the basin, water quality degradation, and private and public wells going dry. The multi-objective nature of the project is well suited for the plan.

(j) **Climate Change Effects**

Expected energy use in pumping requirements associated with any public water system will effect GHG emissions. Initially, the project's energy usage will off-set energy not being used by wells.

(k) **Reducing GHG compared to Project Alternatives**

While not specifically addressing GHG, a comprehensive water supply alternatives evaluation was done as part of the EIR for the Nacimiento Water Project (December 2003). Several project alternatives were considered, including:

- State Water Project through the Coastal Branch
- Desalination of Seawater
- Reclamation of Wastewater
- Enlargement of Salinas Dam
- Enlargement of Lopez Dam
- Enlargement of Nacimiento Dam
- Possible construction of new reservoirs
- Weather Modification
- Various Nacimiento water treatment plant sizes and configurations

The Nacimiento Water Project was selected because of its high rankings with regard to anticipated quantity of water yield, water supply reliability, estimated cost, and ease of environmental and regulatory permitting. Additional information on the alternatives evaluation can be found in the Nacimiento Project EIR.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

Project does not rely on the SWP.

8.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

The project has a certified EIR and covers the project impacts and mitigation. Project is a Capital Project to construct a WTP off of the existing Nacimiento Pipeline. Project is expected to decrease the amount of groundwater pumping and allow for additional demand in the future for projected growth. Assumption is that 4,000 AFY of groundwater pumping will be permanently reduced on average.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Project is under implementation. No additional analysis will occur.

8.5.3 ***Plan Performance and Monitoring***

(p) **What is Proposed Methods of Monitoring Project Performance**

Project performance can be measured both by increased groundwater quality and groundwater elevations over the 10-year monitoring period using dedicated monitoring wells and in-system water quality testing.

8.5.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

The City of Paso Robles has implemented the necessary fee and rate adjustments to pay for the first phase of the project. Additional phases may come from new growth or public grant funding.

(r) **Funding Mechanisms, Including Water Rates, etc.**

The City of Paso Robles has water fees and rates to pay for capital and O&M.

(s) **How O&M Costs for Projects will be Covered**

The City of Paso Robles O&M program is funded by existing customers through their water rates.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCNT_WSP1	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction	>$5M	City of Paso Robles has implemented the fee and rate adjustments to pay for the first phase of the project	In-kind labor from City of Paso Robles and reporting costs are fully funded; capital cost contributions are fully funded through current rate program	City of Paso Robles O&M Program can support project operations, maintenance, and replacement costs in perpetuity
			Grant Monies(Prop 84, 3rd Round) are being sought to offset the first phase costs as construction is taking place to reduce stress on existing rate payers	None	

8.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

No additional analysis is anticipated given the first phase implementation. Additional phases will be the logical extension of the initial phase.

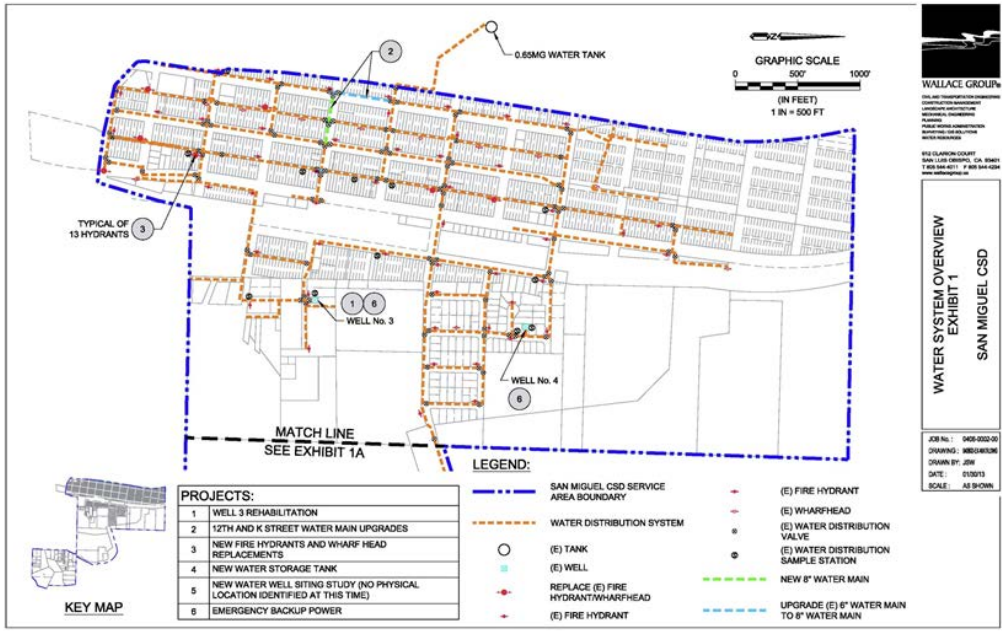
Project 9. San Miguel Critical Water System Improvements

9.1 Project Number: NCNT_WSP2

9.2 Project Location: North County

9.3 Project Sponsor: SMCSD

San Miguel Community Services District (SMCSD) Water System Improvements - Disadvantaged Community



Source: Prop 84 2013 Grant Application

9.4 Project Summary:

This project is seeking **construction of six of the highest priority, critical water supply projects** as listed below. The District needs to implement all six of these identified projects in the immediate future, or they will be faced with **continued deterioration of an already deficient water system**, and may not be able to support even limited beneficial growth with the identified deficiencies that face the District's water system.

1. **New Fire Hydrants and Wharf Head Replacements** – Thirteen (13) new fire hydrants to replace inadequate and aging hydrants.
2. **Well 3 Rehabilitation -** Well 3 is over 40 years old and requires upgrades in the well motor housing, disinfection system, electrical wiring, backup power generation and the protective structural building.
3. **New Water Well Siting Study** – Respond to the urgent need of replacing the San Lawrence Terrace Well, taken out of service because of high arsenic concentrations, and providing water supply redundancy in the event of an emergency shutdown of any three existing wells.

4. **Emergency Backup Power** – Equip Well 3 and Well 4 with power generators (100 kW and 150 kW, respectively) in the event of power failures to maintain a minimum supply of water during widespread power outages.
5. **New Water Storage Tank** – Construct the San Lawrence Terrace Water Storage Tank with 0.25 million gallons for capacity and water quality improvements.
6. **12th and K Street Water Main Upgrades** – Replace old and undersized piping at 12th Street and K Street.

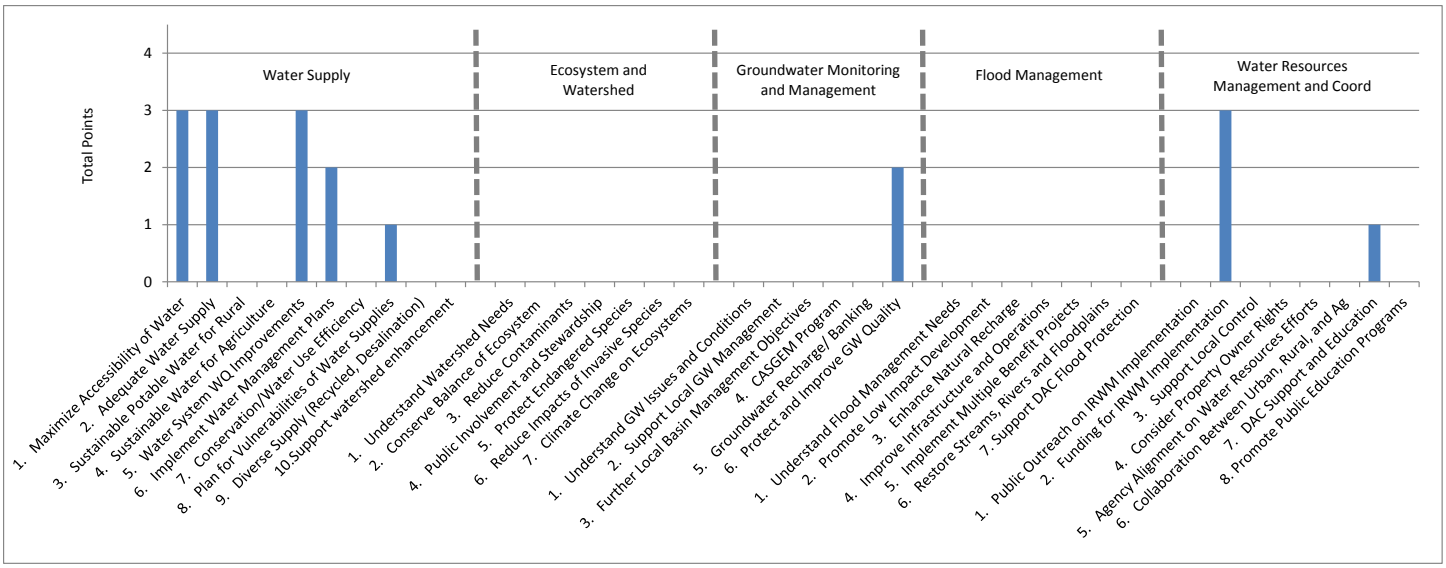
To finance existing system improvements, **SMCSD recently increased rates to pay the debt service for the 0.65 MG tank and begin a sinking fund for replacement/rehabilitation of the aging water system**. This was the SMCSD's first water and sewer rate increases in over a decade. **Being a DAC, this was extremely hard on the majority of the community's residents**.

Available Source Documents: *San Miguel Community Plan (2013), Infrastructure and Utilities*

9.5 IRWM Plan Section Information and Analysis:

9.5.1 *Project Solicitation and Ranking*

How does the project:



(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:

Water Supply – **Maximize Accessibility of Water**

Overall system improvements increase the availability of water supply to provide additional capacity to meet peak hour and fire flow demands. Groundwater, the only source of drinking water, is considered to be within its sustainable yield around the localized area of San Miguel.

Adequate Water Supply

San Miguel, a DAC, is in need of critical water supply improvements to meet deficiencies in both the volume

of water and the rated peak hour and fire flow capacity.

Water System Water Quality Improvements

Radionuclides are naturally found in indigenous groundwater supplies threatening the quality of water supply from these existing wells. The siting of a new well with test hole drilling and full analysis will provide for improved water quality and the ability to phase out old wells which exceed the allowable maximum contaminant limits (MCL).

Water Resources Management – **Funding for IRWM Implementation**

The project has sought and continues to seek much needed funding through various grant programs for capital facilities identified as critical in their 2002 Water Supply Master Plan. SMCSD has showed commitment to funding this critical DAC water supply project since 2002 with no success.

Secondary Objectives

As a DAC community, the SMCSD is seeking support from outside funding for their critical water supply needs. Existing water rates are already high to operate and maintain an aging system with need of replacement and repairs. The project, as described, meets the minimum required facilities to bridge the funding gap and provide for meeting Title 22 drinking water standards, and fire flow requirements. Additional benefits include water system redundancy for protection of system outages or water quality issues.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Improve Water Quality	• Drinking Water Treatment and Distribution	• Water Supply Reliability • Water Quality Protection and Improvement	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Seek outside funding for water and flood control projects in low income areas	• Maximize Accessibility of Water • Adequate Water Supply • Water System Water Quality Improvements • Funding for IRWM Implementation

(c) **Technical Feasibility and Justification**

<u>Upgrades to Well 3 – Water Supply Reliability, Water System Reliability, Reduced Energy</u>

Well 3 upgrades will bring 40 year technology and energy efficiencies to modern day standards of improved electrical equipment, pump design and control valve operations. Along with the standby generator project, Well 3 will have the highest reliability of water supply in the system and the lowest per gallon operations cost due to these proposed rehabilitation efforts.

Siting of New Well – Water Supply Reliability, Water System Reliability

In addition to their aged condition, radionuclides in water supply Well 3 and Well 4 have been increasing in concentrations over the years. The appendices to the 2002 Water Master Plan portray the historic radionuclide information for Wells 3 and 4. Clear trends of increasing radionuclide concentrations are evident. Since this "trending" analysis was completed in 2002, there have continued to be periodic isolated exceedences for this primary MCL. A new water supply well, with screened casing in a different aquifer zone, will allow the SMCSD to yield a new water supply which reliably meets all drinking water standards. The new well siting study will help pinpoint the best location, and optimum screened interval to accomplish the addition of a new safe and reliable water supply for the community.

Replace Fire Hydrants – Water Supply Reliability, Water System Reliability

SMCSD has identified a total of 13 old and aging fire hydrants and undersized wharfhead hydrants. The old aging fire hydrants are considered by operations staff to be unreliable any longer, for yielding fire flows during emergencies. This poses a serious safety threat during fire emergencies. Also, the existing wharfhead hydrants are 2" diameter, and substantially below standard (6" standard hydrant) for delivering adequate fire flows.

New Well Siting Study – Water Supply Reliability, Water System Reliability and Reduced Energy

In April 2003, the SMCSD retained the services of a local hydrogeologist to conduct a preliminary well siting study for installation of new municipal water wells. The report (Cleath & Associates) identified two potential sites; north of the Mission San Miguel in the southern portion of the town, and north of Lillian Larson School in the northern portion of the town. In 2010, the SMCSD pursued a USDA grant/loan (similar to that implemented for the new water tank construction) to complete the necessary site investigations, but found that USDA no longer had any grant monies available. The project had since been postponed due to lack of funding.

The SMCSD must continue to pursue the installation of at least one new water supply well in order to secure water supply reliability for today's water demands and to ultimately supplement inefficient 40 year old wells with a new energy efficient well. This new well siting study would essentially build upon the prior study completed in 2003, and will include a more detailed analysis of the two identified well sites including property acquisition, pilot hole drilling, logging of the pilot holes, and water quality testing to verify the quality of groundwater in these two areas.

Power Generators for Wells–Water Supply Reliability, Water System Reliability

The SMCSD will utilize two new standby generators at their two existing well sites, Wells 3 and 4. The standby generators will be used during times of extended power outages, and major emergencies such as earthquakes, to ensure the SMCSD can continue pumping groundwater needed for domestic supply and most importantly, for needed fire flow.

Water Distribution System Improvements – Water System Reliability

The SMCSD is pursing to complete an upgrade to existing water piping in the southern area of San Miguel to correct deficient fire flows to the southern San Miguel area including the Mission, a critical tourist attraction to the community. It is also noted that new CDPH standards require new water mains to be a minimum of 8" diameter.

(d) **Benefit DACs**

The community of San Miguel is a DAC.

(e) **Environment Justice**

The project does not impact low income areas and is expressly for the benefit of a DAC.

(f) **Cost and Financing**

The total project cost is estimated at $950,000 including capital costs and labor. Costs are broken down as follows:

Well 3 Upgrades – $200,000

Well 3 and 4 Generator - $200,000

T-main Upgrades - $175,000

Storage Tank - $250,000

Fire Hydrants - $50,000

Well Siting Study - $75,000

(g) **Feasibility through Economic Analysis**

DACs are given special consideration in showing benefits and cost for DAC projects up to a total project cost of $1M. In such cases, the proposal can opt to complete a Cost Effectiveness Analysis, Section D1 – Cost Effectiveness Analysis. In this case, Cost Effectiveness is measured based on evaluating whether the physical benefits provided by the project elements are provided at the least possible cost, or not.

The six sub-projects defining "critical" system improvements have been studied as part of a water master planning effort which assessed the condition of the existing San Miguel Water System. As a suite of improvements to address the critical problem areas, each sub-project is benefiting a defined need based on the standard engineering and business practice of rehabilitating or replacing aging system components (e.g., water mains, well pumps and motors, fire hydrants, etc.) and increasing capacity and reliability as the regulations requiring both change over time (e.g. increased storage and backup water supplies).

(h) **Project Readiness to Proceed**

Project can proceed with the project upon funding.

(i) **Strategic Implementation of the Plan and Project Merit**

Critical water system improvements in low income areas are an important implementation element of the IRWM Plan and meeting its stated Goals and Objectives. The SMCSD submitted a Prop 84 implementation

grants in 2013 that was not funded. They continue to seek outside funding to implement the suite of needed projects. The IRWM Plan is an effective means of accomplishing this goal.

(j) **Climate Change Effects**

The generators will contribute GHG affecting climate change.

(k) **Reducing GHG compared to Project Alternatives**

No cost effective project alternatives are available as an emergency back-up supply of power.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

SMCSD does not use SWP.

9.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Project will have an increase in booster pumping cost to meet peak flow demand from storage tank. Assumed annual water is conservatively assumes the tank empties and fills every day of the year. Generators will only be used during outage and test periods and cannot be directly associated with water lost or gained.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

The analysis completed as part of the Prop 84 Round 2 Grant Application is sufficient.

9.5.3 ***Plan Performance and Monitoring***

(p) **What is Proposed Methods of Monitoring Project Performance**

Performance is measured based on meeting Title 22 Drinking Water Standards and peak hour flows with no system problems in either quantity or quality of water.

9.5.4 ***Financing Strategies***

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

State and federal grants have been pursued in the past but not awarded. SMCSD is seeking 100 percent outside funding.

(r) **Funding Mechanisms, Including Water Rates, etc.**

SMCSD's existing water rates cannot pay for the needed system improvements.

(s) **How O&M Costs for Projects will be Covered**

SMCSD's rates will pay for O&M of capital facilities once project is completed and operational.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCNT_WSP2	San Miguel Critical Water System Improvements	$500K-$1M	San Miguel CSD, a DAC, can provide minimal funding through rates and fees	In-kind labor from San Miguel CSD and reporting costs are fully funded; capital cost contributions are uncertain	San Miguel CSD will pay for replacement capital and long-term O&M.
			Grant Monies (Prop 84, 3rd Round; USEPA Watershed Grant Program)	None	

9.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

See Section H of IRWM Plan – Mitigating or Adapting to Climate Change for brief discussion of climate change and the project.

Project 10. 8th Street Upper Aquifer Well and Nitrate Removal Facility

10.1 Project Number: NCST_GWM1

10.2 Project Location: North Coast

10.3 Project Sponsor: LOCSD

Los Osos Community Services District

Source: Los Osos CSD South Bay Well House

10.4 Project Summary:

The Los Osos Community Services District (LOCSD) is proposing to **construct a new upper aquifer well and nitrate removal system** at an existing water well facility in the community of Los Osos. The project includes installation of a new well with well pump, ion-exchange nitrate removal skid-mounted treatment system, pre-manufactured 600 square foot metal building, 5,000 gallon High Density Polyethylene (HDPE) tank, and various piping to connect the site's existing facilities to the new structures. The new well will be approximately 125 feet deep and it is estimated that the pumping capacity will be 100 gallons per minute (100 AFY). The new well will be drilled adjacent to the existing lower aquifer well at the 8th Street and El Moro Street Utility Water Yard location. Both the new and existing well heads will be enclosed in a new pre-engineered metal warehouse building along with the nitrate removal treatment equipment. The existing wellhouse for the lower aquifer will be demolished. Water from the new well will be pumped through the nitrate removal facility and then piped to the main LOCSD water distribution system. **Brine from the nitrate removal ion exchange unit will be stored** in a 5,000 gallon tank adjacent to the wellhouse building and **periodically trucked offsite to an approved disposal facility**. Based on the capacity of the new well pump, it is estimated that the brine tank will need to be drained approximately four (4) times per week.

On August 5, 2008, the Court approved an Interlocutory Stipulated Judgment (ISJ) between LOCSD, Golden State Water Company, S&T MWC and the County. The ISJ formed a Working Group with the purpose of

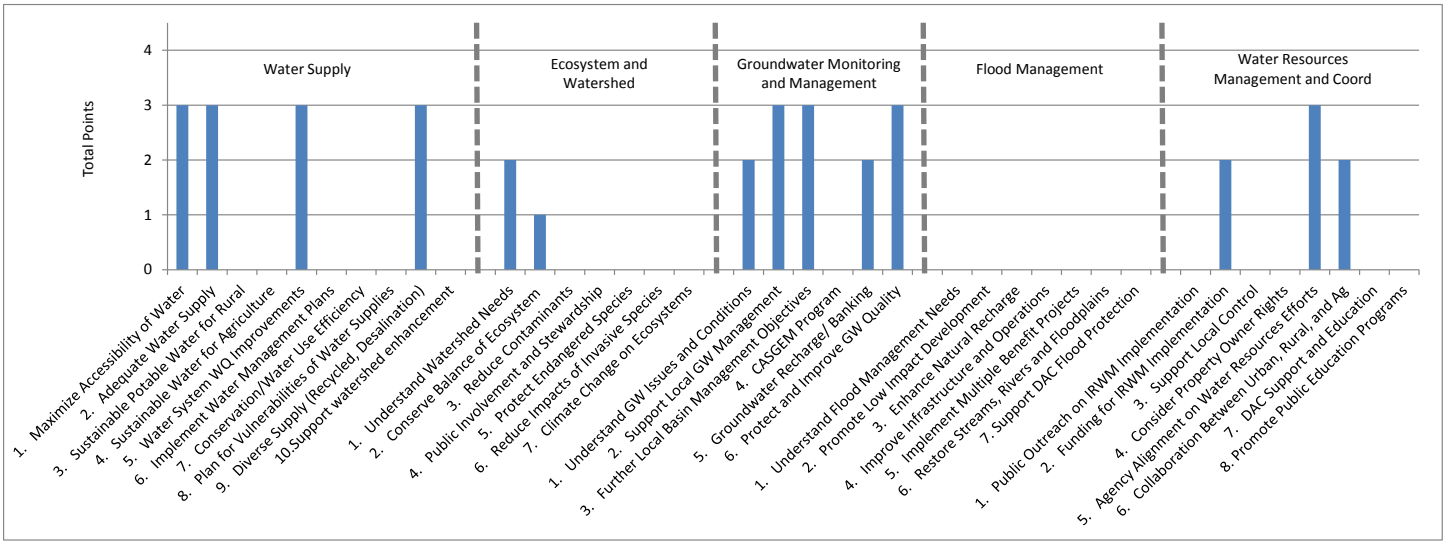
researching the current condition and uses of the Los Osos Groundwater Basin, and adopting a Basin Management Plan (Basin Plan) to resolve conflicting claims related to Basin water resources. The Basin Plan is the result of those efforts and is intended to fulfill the obligations of the Parties pursuant to the ISJ. As a member of the ISJ Working Group, LOCSD has identified certain projects that provide an overall benefit to the groundwater basin. This project will ultimately benefit all Water Purveyors in the Los Osos Basin (Golden State Water Company, S&T Mutual Water Co. and LOCSD) by reducing the pumping on the Lower Aquifer and increasing the production from the Upper Aquifer, which will help reduce sea water intrusion and reduce the risks to each of the water purveyor's water supply wells.

Available Source Documents: *Los Osos Water Master Plan; Los Osos, Sea Water Intrusion Assessment and Lower Aquifer Source Investigation of the Los Osos Valley Ground Water Basin; Los Osos , Public Draft Review Basin Plan for the Los Osos Groundwater Basin*

10.5 IRWM Plan Section Information and Analysis:

10.5.1 *Project Solicitation and Ranking*

How does the project:



(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:

Water Supply – **Maximize Accessibility of Water**

Project implementation results in a higher beneficial use of the nitrate contaminated shallow aquifer of the Los Osos Valley Groundwater Basin.

Water System Water Quality Improvements

Project reduces reliance on the deep aquifer system where sea water intrusion threatens drinking water supply wells.

Adequate Water Supply

Project enhances available groundwater supplies with the added benefit of reducing dependency on the deeper aquifer, currently subject to increased sea water intrusion.

Diversify Supply (Use of Poor Quality Water)

Project incorporates a new water treatment technology to make use of poor quality water as a supplemental source of drinking water supply.

Groundwater Management – **Further Local Basin Management Objectives**

Project is implements the Public Draft of the *Basin Plan for the Los Osos Groundwater Basin*, (August 2013) as a means to reduce sea water intrusion into drinking water supply wells of LOCSD, Golden State Water Company, and S&T MWC.

Protect and Improve Groundwater Quality

Project extracts shallow groundwater high in nitrate concentrations and treats for potable water use, and reduces reliance on deep aquifer wells where sea water intrusion is a priority concern.

Water Resources Management – **Agency Alignment on Water Resources Efforts**

The Project is identified as part of a regional solution in the fair apportionment of the groundwater basin yield amongst three water districts, and private rural and agricultural well owners.

Secondary Objectives

The project furthers on-going efforts to collaborate with other water districts and private well owners in the best management practices for the basin. While the scale of the project is not significant in comparison to larger program implementation, it does represent multi-objective thresholds being sought for the region as a solution to contamination and sustainable yield. As a result, the project is considered to be an effort to maximizing available water supplies for public water systems, recognizing that the project is also one part of the Basin Plan's Water Reinvestment Program which includes additional objectives not listed above.

As one part of the Basin Plan's Water Reinvestment Program (i.e., returning recycled wastewater to the local hydrologic cycle), the Project enhances benefits of the existing Broderson recharge site where excess recycled water is permitted to leach into the shallow aquifer for extraction by the new shallow well (Project) down gradient.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Increase Water Supply • Improve Water Quality	• Drinking Water Treatment and Distribution • Pollution Prevention	• Water and Wastewater Treatment • Water Supply Reliability • Water Quality Protection and Improvement • Groundwater Management	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	• Maximize accessibility of Water • Water System Water Quality Improvements • Adequate Water Supply • Diversify Supply • Protect and Improve Groundwater Quality • Agency Alignment on Water Resources Efforts

(c) **Technical Feasibility and Justification**

The LOCSD receives its entire water supply from the Los Osos Groundwater Basin (Basin). The Basin has two distinct zones: Upper Aquifer and the Lower Aquifer. There are currently two separate, but highly intertwined problems with the Basin. The first issue is that the Lower Aquifer is experiencing increasing levels of seawater intrusion due to overdrafting of the Lower Aquifer. The second issue is that the Upper Aquifer is contaminated with nitrates above the drinking water standard.

The Lower Aquifer has been the District's, as well as the other two water purveyors', primary water supply source as the Upper Aquifer has been contaminated by nitrates. The Lower Aquifer is currently in overdraft and is experiencing seawater intrusion in the District's and other water purveyors' westernmost wells. Production from the District's largest and primary water supply, the Palisades Well, has been required to be reduced to minimize the impacts of seawater intrusion. Other wells within the District are being utilized instead of the Palisades Well, all of which have lower production rates, and subsequently the District is barely keeping up with current water demands. As a result, the District, Golden State Water Company, S&T Mutual Water Company, and the County of San Luis Obispo have formed the ISJ Working Group and have prepared a Groundwater Basin Management Plan (Basin Plan) to identify the means and methods on how to best manage the Basin and reduce or stop seawater intrusion altogether since the problem is Basin-wide, affecting all three water purveyors in the area. The Basin Plan has identified several projects with the main goal of shifting production easterly in the Basin and from the Lower to the Upper Aquifer. This project is one of the critical projects outlined in the Basin Plan that meets this main goal to help improve the management of the Los Osos Groundwater Basin.

Due to the high density of septic systems in the Los Osos Community, the Upper (shallow) Aquifer is contaminated with nitrates above the drinking water standards. The community has been subject to a building moratorium from the Regional Water Quality Control Board, Resolution 83-13 for the past 28 years. This order requires the community to develop a community wide centralized wastewater collection system and treatment plant, which is currently underway by the County of San Luis Obispo. The District, as well as the other two water purveyors within the community have under-utilized the Upper Aquifer because the water quality for nitrates does not meet current CDPH drinking water quality standards. Limited blending to reduce nitrate levels below drinking water standards has occurred in years past, but not to the degree that

such blending can augment existing water supplies sufficiently.

The County of San Luis Obispo, due to the two distinct water quality issues and the overdraft of the Lower Aquifer has placed the Los Osos Groundwater Basin in a Level Severity III Drought condition. As part of the Coastal Commission requirements for the Wastewater Project, the County and the water purveyors are required to identify solutions to the overdraft problem. In order for the Los Osos Groundwater Basin to be sustainable, the District must reduce its pumping from the Lower Aquifer and increase its pumping from the Upper Aquifer to meet existing demands. In order to increase production from the Upper Aquifer, the water is required to be treated to remove nitrates to the degree that the water supply meets drinking water standards. Therefore, the proposed project will meet the following goals of the groundwater Basin Plan:

- Increase production in the Upper Aquifer
- Supplement production in the Lower Aquifer to make up production lost from the District's main water supply, the Lower Aquifer Palisades Well
- Shift production from the west to the east, away from seawater intrusion

(d) **Benefit DACs**

No State certified DACs exist in the Los Osos Valley Groundwater Basin.

(e) **Environment Justice**

The water quality of water produced for this project (or the waste stream from treatment) will not degrade or impact low income areas in any way.

(f) **Cost and Financing**

Estimated capital cost is $935,000 with an estimated annual O&M cost of $85,000, and a projected life-cycle of the treatment plant, motors and pumps of 20 years.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D3 – Monetized Benefits Analysis has been selected based on the grant amount and the ability to monetize the benefits in terms of an annual dollar value for each year of the project's operation. LOCSD benefits are to be expressed as the cost of water saved by not having to import water or construct a desalinization water treatment plant.

(h) **Project Readiness to Proceed**

This project has completed preliminary design and environmental review process has been started. The construction plans and specifications are expected to be completed by winter 2013, early spring 2014. Construction may start as soon after spring 2014. It is expected that CEQA compliance will include a mitigated negative declaration.

(i) **Strategic Implementation of the Plan and Project Merit**

This project serves as an example where groundwater basin cooperation amongst multiple users can lead to improving contaminated groundwater supplies for a higher beneficial use. As a new source of supply, the well provides for drought readiness and protection of the lower aquifer from sea water intrusion.

(j) **Climate Change Effects**

The project is not anticipated to significantly impact climate change in the region. As a drought readiness

supply, the impacts of climate change can be overcome if extended drought years occur in the future.

(k) **Reducing GHG compared to Project Alternatives**

Several projects have been suggested in the preliminary design process and through the ISJ Working Group Basin Plan process. In addition to demand reduction through conservation, alternatives include importing water from an outside source, or installing more expensive filtration treatment, such as desalinization. This project is less costly than importing water or installing a desalinization plant and requires less energy resulting in less GHG emissions. The County and members of the ISJ Working Group will be continuing efforts to increase the conservation program in conjunction with this project.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

The LOCSD does not use SWP water.

10.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Project will have a treatment and pumping energy cost at the new well site. Since the project anticipates reducing pumping from the deep aquifer, the net energy cost is likely a gain because of deeper water surface from deep aquifer well. However, added treatment is assumed to set the overall energy cost at zero.

The following impacts statement was developed From the Mitigated Negative Declaration Statement:

a. The project site is surrounded by a solid wood fence, and matured landscaping is located along the 8th Street street-side perimeter. Facilities within the site are partially visible above the landscaping and along El Moro Avenue. Visible components of the project would include a 600-square foot metal building and 5,000-gallon HDPE. While partially visible from 8th Street and El Moro Avenue, these structures would be consistent with existing development onsite, and would be primarily obscured by the existing fence and landscaping. Based on the proposed location of the project, proposed development would likely be consistent with the adjacent development and character of the area.

b. The proposed project would not introduce a new use, and would be consistent with existing uses.

c. The proposed use is consistent with the visual character of the immediate area.

d. The project does not include any new sources of light or glare

e. The project site is currently developed, and the proposed project would not affect any unique geological or physical features.

The project benefits include reduced reliance on the lower aquifer threatened by sea water intrusion and reduces the need to import costly water from outside the basin.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Upon grant funding.

10.5.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

10.5.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs, including:

(q) **Known and Possible Funding Sources**

Funding will come from grant funding and LOCSD reserves for local cost share.

(r) **Funding Mechanisms, Including Water Rates, etc.**

LOCSD water rates and fees.

(s) **How O&M Costs for Projects will be Covered**

LOCSD water rates.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCST_GWM1	8th Street Upper Aquifer Well and Nitrate Removal Facility	$500K-$1M	Los Osos CSD reserves and rates are sufficient to pay for all of the local cost share	In-kind labor from Los Osos CSD and reporting costs are fully funded; capital cost contributions are uncertain	Los Osos CSD can support project operations, maintenance, and replacement costs in perpetuity
			Grant Monies (Prop 84 (Groundwater), 3rd Round; WaterSMART Program; could apply towards recycling water grants)	None	

10.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Yes.

Project 11. Los Padres CCC Center - Stormwater LID Treatment Project

11.1 Project Number: NCST_FLD1

11.2 Project Location: North Coast

11.3 Project Sponsor: Morro Bay Estuary Program

Morro Bay National Estuary Program

Source: Google Maps (sponsor to verify or provide image0

11.4 Project Summary:

The Los Padres Center Project represents a Low Impact Development (LID) implementation project at a scale and under ownership where research, education, and water resources management can take place concurrently within a self-contained ecosystem. While not a large project, the Los Padres Center Project does offer opportunities for land use agencies to see and understand the elements of LID

The area of land that will be benefitting from Stormwater LID Treatments belongs to the National Guard and are leased by the California Conservation Corps (CCC). The CCC - Los Padres Center is a residential center where approximately 80 corpsmember reside. Participants are 18-25 years old and sign up for 1 year to work on conservation projects that teach them skills and earn educational scholarships to help them be employable when they leave the CCC. The Center is located next to Chorro Creek and Poison Ivy Creek. By

implementing this project the corpsmembers will not only benefit by learning LID techniques, and the importance of water quality and water conservation but will also benefit by having a more livable area at the center that will thoroughly engage them in land stewardship that they will take with them when they move on. Chorro Creek and listed endangered species such as, steelhead and California red-legged frogs will benefit by a reduction in peak run-off that degrades water quality and quantity by creating detention basins keeping the water on the land longer before slowly discharging in Chorro Creek.

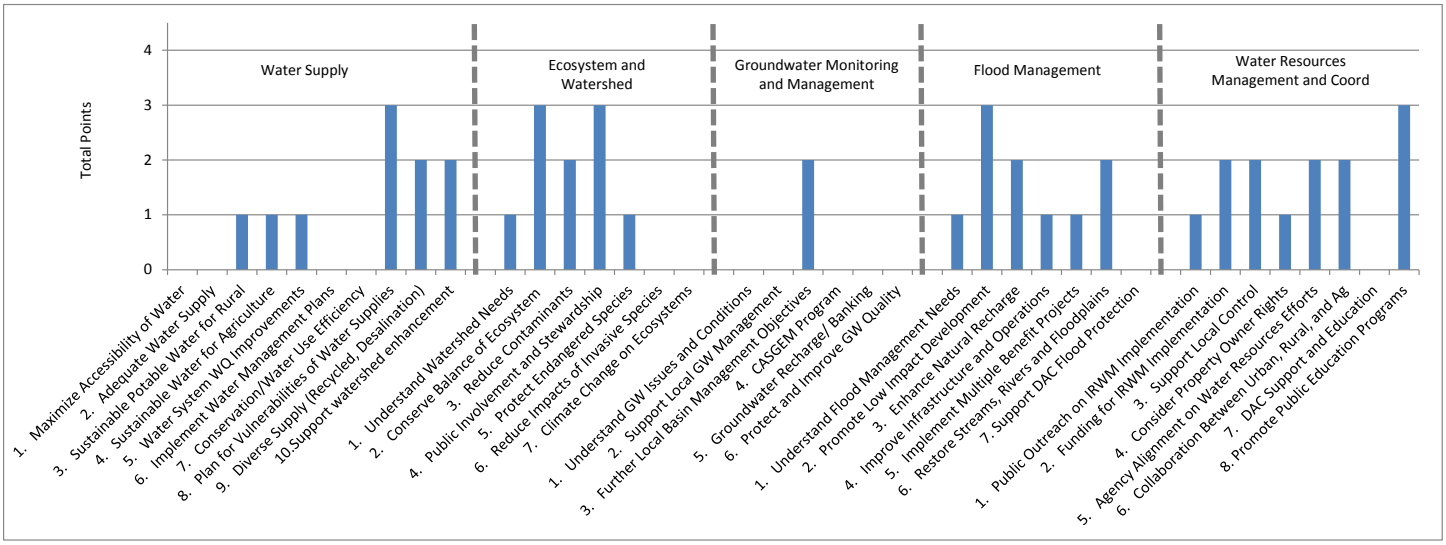
Morro Bay National Estuary Program brings together citizens, local governments, non-profits, agencies and landowners to protect and restore Morro Bay. This project is a collaboration with the CCC and the National Guard to implement a demonstration project that will target action items outlined in their Comprehensive Conservation Management Plan that provides guidance on recovery actions that will result in restoring and protecting the Bay by improving water quality, enhancing steelhead habitat, conserving water and providing natural environments for citizens to enjoy.

The CCC Stormwater LID Treatment project is an ambitious demonstration project which will focus on **eliminating flooding at CCC Buildings** while also **increasing groundwater infiltration and habitat restoration** by installing site specific topographical earthwork features. The project estimates that on-site earthwork and plumbing can mitigate over one million gallons of water on the project site while attenuating adjacent Chorro Creek storm surges through seven acres of habitat restoration. **By widespread land cover and shade tree installation** at 43% of the project site, groundwater recharge areas will be increased. Reducing energy costs and local water supply reserves, including recycled onsite water (greywater, rainwater, mechanical), will be utilized for irrigation and indoor non-potable water uses such as toilet flushing.

Two constructed wetlands will contribute to the largest reduction in the large storm event runoff, while greatly improving stormwater quality and potential for recreational activities such as birding and onsite watershed education. Over 9280 native and food bearing plants will be planted to cool buildings and reduce energy use while greatly improving the aesthetic and educational environment for the resident CCC corps members and nearby San Luis Obispo residents. Seven "living areas" will be installed through placement of plantings and earthworks to reduce off-site travel of CCC Corps members and increasing onsite recreational and learning opportunities.

This project aims to be a learning laboratory for the corps members and future watershed crews. The corps members will be active and included on the CCC Native Greenhouse onsite; installation of the earthworks: inclusion in the construction of infiltration basins and bioswales by directed CCC corps members; take a part in planting and maintenance of plants; and assist in plumbing irrigation of specific plants through recycled onsite waters (i.e., grey water and captured stormwater).

Available Source Documents: *County General Plan Conservation and Open Space Element*



11.5 IRWM Plan Section Information and Analysis:

11.5.1 *Project Solicitation and Ranking*

How does the project:

(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:

Water Supply – **Plan for Vulnerabilities of Supply**

LID projects are well suited for adapting to Climate Change where the uncertainties of temperature and rainfall can shift the hydrologic cycle in a region to a point where water resources can become scarce, in the case of drinking and irrigation water supplies, or in abundance with higher peak flood events.

Ecosystem – **Conserve Balance of Ecosystem**

Project strives to create a new ecosystem out of an area that is relatively barren and dry by keeping stormwater on-site, planting trees and shrubs, and creating recharge ponds and recirculating plumbing of grey water and stormwater irrigation.

Public Involvement and Stewardship

The Project is a good example where public and governmental agencies are combining their resources to manage lands for the purpose of learning more about what LID can offer the IRWM region.

Flood Management – **Promote Low Impact Development**

The Project is going to provide research and educational opportunities to promote LID in the IRWM region,

as well as internationally over the internet.

Water Resources Management – **Promote Public Education**

The Project stresses public education and plans to offer tours and access to research and monitoring reports and material.

Secondary Objectives

Because of the project is taking place at a relatively small scale, some of the larger scale benefits, such as flood control and groundwater recharge may be difficult to see or quantify in this project.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Increase Water Supply • Improve Water Quality	• Conjunctive Management and Groundwater Storage • Pollution Prevention	• Water and Wastewater Treatment • Water Supply Reliability • Groundwater Management	• Develop methods of adapting to Climate Change and other vulnerabilities to the region's water resources. • Create and Preserve natural ecosystems and protect endangered flora and fauna through Land Stewardship and Conservation Easement programs. • Develop and Improve methods of water reuse within a community. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	• Plan for Vulnerabilities of Supply • Conserve Balance of Ecosystem • Public Involvement and Stewardship • Promote Low Impact Development • Promote Public Education

(c) **Technical Feasibility and Justification**

The prominent needs and problems the project will address are water quality and water quantity. Stormwater run-off is the number one contributor to non-point source pollution. The project site has incredibly compacted terrain and hardscapes that contribute to accelerated run-off. Due to the proximity of Chorro Creek and the lack of pervious soils and topography, the run-off drains into the creek and contributes to channel bed and bank erosion and degrading water quality by both sedimentation and pollutants. Water quantity is affected by channel incision and the lack of infiltration in the landscape. The project intends on using 185,900 gallons of rainwater for non-potable indoor use, and outdoor irrigation and capturing approximately 247,840 cubic feet of stormwater. 167,000 gallons of greywater will be reused to offset the use of potable water.

The project will be used as a demonstration project to influence the community to adopt land use practices throughout the region, will incorporate educational signage, and will be an accessible demonstration site for

tours and interested parties with self-guided tours and recreational areas such as bird watching and "livable spaces".

(d) **Benefit DACs**

No DACs will benefit from this project.

(e) **Environment Justice**

Low income areas are not affected by project implementation.

(f) **Cost and Financing**

Total estimated project cost of $1,663,192 with an estimated $800,000 of labor costs (in-kind labor is anticipated by the CCC). The project is seeking grant funding for the project costs.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D2 – Non-Monetized Benefits Analysis will likely be selected for the ecosystem and educational benefits. The ability to assign benefits is tied to the ability to educate the public in the use and benefits of LID construction and devices, and to creating an eco-friendly environment. The analysis will likely be a description of the public and environmental stewardship benefits resulting from the implementation.

(h) **Project Readiness to Proceed**

Upon funding in whole or in phases, the project can proceed.

(i) **Strategic Implementation of the Plan and Project Merit**

The underlying intent of the project to change from an existing land use which is not ecofriendly to one that is. This pushes the project to the forefront of climate change adaptation alternatives, more so than other projects with greater benefits in other water resources management categories.

(j) **Climate Change Effects**

Project is considered as an adaptive climate change project, providing alternatives to how to react to the potential negative effects of climate change.

(k) **Reducing GHG compared to Project Alternatives**

The project was selected because of the need and opportunity to improve permeabilty and reduce run-off and flooding from the landscape and the accessibility and willing ownership for a demonstration project. The project is considered as a low tech, high labor, high benefit project that was selected for these merits. The impacts on GHG should result in an overall reduction in GHG once plants mature and on-site construction is no longer taking place.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

Not Applicable.

11.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Given the current land use and soil conditions (i.e., the site is compacted bare landscape), the impacts would be minimal and temporary and would be self-mitigated. Project will result in a net decrease in pumping cost from anticipated groundwater recharge raising groundwater elevations. Project does not anticipate any long term increase in water demand. The first couple of years may require water to establish plants and to provide for construction related uses such as dust control, etc.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

As part of any grant application or funding opportunity, if required. The project is not anticipated to create any short-term (i.e., construction related activities will be mitigated through time of year construction and grading) or long term impacts.

11.5.3 ***Plan Performance and Monitoring***

(p) **What is Proposed Methods of Monitoring Project Performance**

Project performance is difficult to quantify in terms of some measurable improvement or benefit from a baseline value. Performance may be measured based on the population of flora and fauna species found on the site over a 10 year monitoring and reporting period. Public education events and tours can also be an indicator of performance.

11.5.4 ***Financing Strategies***

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

The project is seeking 100 percent funding from state and federal grant sources. The project could be broken down in Phases and funding could be sought for smaller amounts of funding from unidentified sources.

(r) **Funding Mechanisms, Including Water Rates, etc.**

(s) **How O&M Costs for Projects will be Covered**

Annual costs for O&M are planned to decrease significantly as planted flora becomes rooted and water infrastructure is operating in accordance with planned LID programs. This is a low tech, high labor, high benefit project that was selected for these merits. O&M will be covered through the volunteer labor of the CCC and additional public funding for replacement costs of facilities over time. The estimated annual O&M is expected to be high in the beginning to establish the planted ecosystem and decrease quickly over a 3 year period.

Year 1 - $562,000

Year 2 - $139,725

Year 3 - $60,790

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
NCST_FLD1	Los Padres CCC Center - Stormwater LID Treatment Project	$500K-$1M	Morro Bay National Estuary Program and CCC to provide in-kind labor services	In-kind labor from Morro Bay National Estuary Program and CCC include a portion of construction labor and reporting costs; capital cost contributions are uncertain	CCC will fund labor and seek outside support for replacement and/or improvement costs; routine maintenance is fully funded in perpetuity
			Grant Monies (Prop 84, 3rd Round, WaterSMART, Army Corps Wetlands Grant; CA State Parks Land and Water Conservation Fund)	None	

11.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Not applicable to a net positive benefit project providing passive solar cooling, and the slight reduction in reliance on energy to transport state and local water sources (no pumping of water).

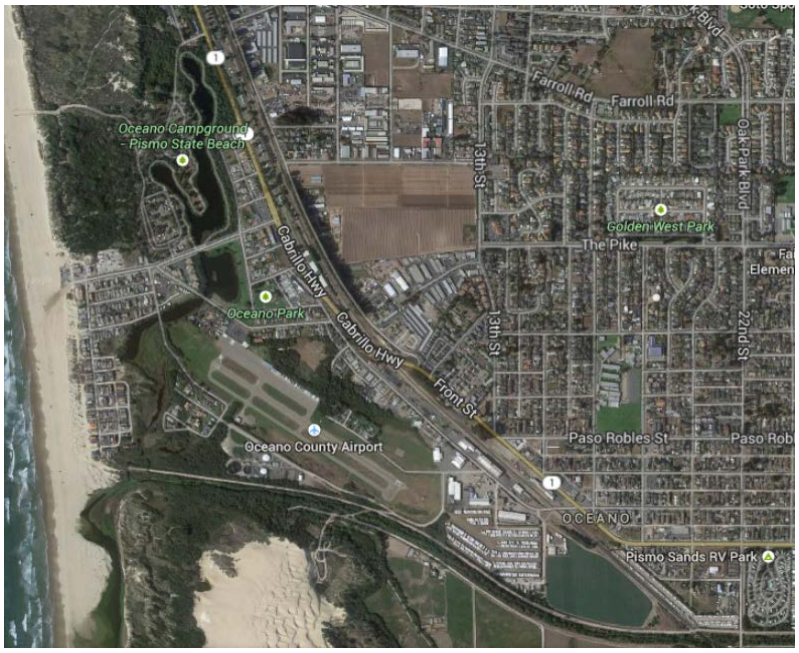
Project 12. Oceano Drainage Improvement Project - Hwy 1 & 13th Street

12.1 Project Number: SCNT_FLD2

12.2 Project Location: South County

12.3 Project Sponsor: County

County of San Luis Obispo, Department of Public Works



Source: Google Maps (sponsor to verify)

12.4 Project Summary: [what is size of pond? Is there retention and detention?]

The Project includes **construction of approximately 1,500 feet of storm drain pipe**, to convey drainage from the intersection of Highway 1 and 13th Street, and an outfall pond (sedimentation basin). The basin will **collect storm flows and allow debris and sediments to settle out prior to discharge** through the existing 36-inch culvert or a new box culvert located in the Arroyo Grande Creek levee. The project is located at the low point of an approximately 40.5 acre drainage shed area. The existing system is undersized for small storm events and as a result floods the Hwy 1 and 13th Street intersection and adjacent properties. The project will **reduce the frequency of drainage issues at Hwy 1 and 13th Street** by constructing drainage facilities that collect and convey flows to the Arroyo Grande Creek channel. The project will also **lessen flows to the Meadow Creek Lagoon area**, thereby_ helping to **mitigate the existing drainage issues for downstream residences, businesses and the South County Sanitation District facilities**.

The project will **reduce maintenance and storm related management of the surrounding area.** It will

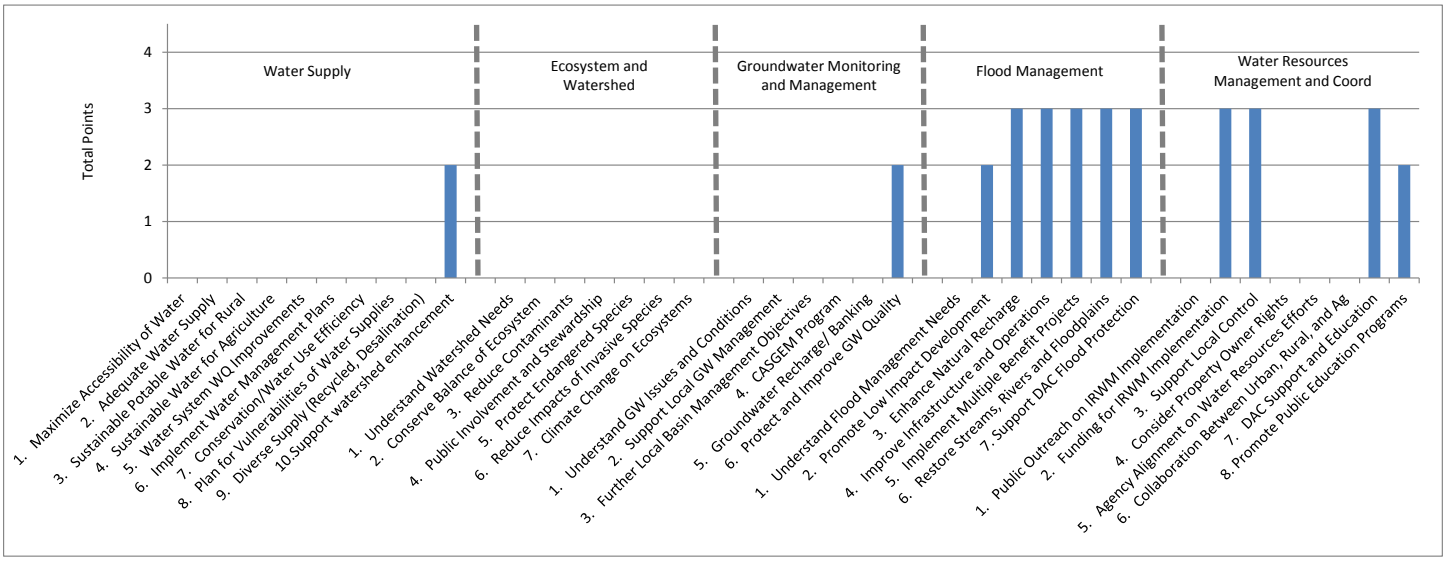
improve access and circulation on Hwy 1 and adjacent roadways as well as increasing the efficiency of road operations and improve emergency response times for the surrounding area.

Available Source Documents: *Oceano Revitalization Plan; Oceano Drainage Study*

12.5 IRWM Plan Section Information and Analysis:

12.5.1 *Project Solicitation and Ranking*

How does the project:



(a) **Contribute to Plan Objectives**

Project fully satisfies the following Objectives:

Flood Management – **Enhance Natural Recharge**

The infiltration devices included in the project will allow for natural groundwater recharge. The sediment basin will detain storm water during high flows and allow for a managed discharge into Arroyo Grande Creek and recharge within the LID basin.

Improve Infrastructure and Operations

The project will install flood control piping and infrastructure and reduce flooding along Hwy 1 & 13th Streets. The infrastructure is designed to a handle a 10-year event which provies greater protection that the current infrastructure which floods during less than a 2-year event typically. The project reduces flooding frequency, downstream flooding, improves water quality and reduces downstream sediment accumulation through installation of the project infrastructure (pipes, drain inlets with filter inserts and the sediment basin).

Implement Multiple Benefit Projects

The project combines needed flood protection with enhanced benefits of flood safety, attenuation, and reduction in non-point source discharges to Arroyo Grande Creek. Operations of the retention/detention basin with installed infiltration devices increases groundwater recharge.

Restore Streams, Rivers, and Floodplains

The project will maintain the natural river floodplain and ensure the health and safety of the traveling public by reducing the frequency and severity of flooding on Hwy 1 at 13th Street. The LID and infiltration devices incorporated into the project will also protect and enhance the Arroyo Grande Creek water shed and water quality.

Support DAC Flood Protection

Oceano is a DAC that will benefit from implementation of the Hwy 1 & 13th Street drainage project. Use of the IRWM grant funds provides an opportunity to support the community without unfairly burdening the businesses and residents.

Water Resources Management – **Funding for IRWM Implementation**

The project has achieved 80 percent funding through various grant programs, showing commitment to funding the project for its implementation in 2014. The remaining 20 percent is also to be met with grant funding.

Support Local Control

The County local Oceano community leaders are committed to the project's implementation. All efforts and decisions take place with full local support and outreach by the County.

DAC Support and Education

The program will create public education and outreach opportunities for the small DAC community of Oceano. The projects benefits and operations will be posted for review of status and operations, and to benefit other jurisdictions in the implementation of these kinds of multi-objective flood management projects.

Secondary Objectives

The LID elements of the project are limited to screening of stormwater and infiltration basins for groundwater recharge. With the intended purpose of project being flood control and stormwater management, the incidental benefits of LID devices are to be quantified, but not used for determining success of the project. Benefits to drinking water supplies or ecosystem will not be quantified. The project has an abundance of public visibility and education opportunities for the IRWM region overall, so certain LID elements could take hold in the community and grow over time. Improvements to drinking water supplies and environmental instream and ecosystem benefits can be achieved as well. Preparedness for changes in hydrology resulting from climate change is inherent in all flood management projects.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Improve Water Quality • Flood Management	• Pollution Prevention • Flood Management	• NPS Pollution Control • Flood Management	• Attenuate storm flows and improve stormwater quality by increasing on-site retention and detention controls. • Seek outside funding for water and flood control projects in low income areas. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	• Reduce Contaminants • Promote Low Impact Development • Funding for IRWM Implementation • Support Local Control • DAC Support and Education

(c) **Technical Feasibility and Justification**

The County Public Works Department and the District mission are to provide a Safe, Healthy and Liveable Community. The Oceano Drainage Project at Hwy 1 & 13th Street will achieve these mission elements by reducing flood occurrences along Highway 1 at the 13th Street intersection in Oceano. The reduction of flooding will improve traffic safety and emergency response times since the project will alleviate flooding conditions at the intersection of Hwy 1 and 13th Street in Oceano.

The total cost is estimated to be $2,699,000 with an estimated life cycle of 20+years. Project sponsor currently has 80% funding for the project and seeking remaining amount through grant funding.

(d) **Benefit DACs**

The project overall is providing flood control benefits to the community of Oceano, a DAC.

(e) **Environment Justice**

The project addresses known environmental justice issues, including CEQA and NEPA, through implementation of mitigation measures and permit conditions included within the project approvals.

(f) **Cost and Financing**

Total Capital Cost (including labor) - $2,699,000

Annual O&M - $5,000

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D2 – Non-Monetized Benefits Analysis will likely be selected for the flooding benefits. The ability to assign benefits is tied to the ability to specifically measure the frequency of flooding and related costs for road closures and maintenance to clean the roadways after waters have subsided. Sediment load reduction and groundwater recharge are also planned to occur through LID project implementation. Recharged groundwater can be credited as a supplemental water supply for the underlying groundwater basin.

(h) **Project Readiness to Proceed**

The project underwent a feasibility analysis and several alternatives were developed along with estimated costs. The alternatives underwent an internal review and an external review by Caltrans personnel (since they are providing some project funding). The preferred alternative was chosen because of constructability and ability to maintain the system.

A Mitigated Negative Declaration was prepared and approved for this project (pursuant to Public Resources Code Section 21000 et seq., and CA Code of Regulations Section 15000 et seq.). The SLO County Environmental Coordinator found that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by the project applicant. Mitigation measures were proposed to address potential impacts and are included as conditions of approval and/or as part of the project description. No significant and unavoidable impacts would result from the proposed project.

Elements of the project pending completion prior to construction include the purchase of the land easement, permitting, design document, and an addition 20 percent funding. Planned construction is to begin in mid-2014 and end in mid-2015.

(i) **Strategic Implementation of the Plan and Project Merit**

As a flood control project, the multiple objective benefits provide the best example of implementing larger Low Impact Development controls of sufficient scale to benefit a small watershed. The added benefits to low income areas prone to flooding create a synergy between regional and local needs by improving flooding on the highway and in the nearby neighborhoods, respectively.

(j) **Climate Change Effects**

Project has no effect on climate change and will improve the flexibility of the drainage system to changing hydrology where higher intensity storm events lead to increased peak flows.

(k) **Reducing GHG compared to Project Alternative**

No additional energy requirements are needed for project implementation.

(l) **Project Sponsor to adopt IRWM Plan**

Multiple sponsors...Community of Oceano (County) will adopt.

(m) **Reduce Dependence on Delta Supplies**

Not Applicable.

12.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

The project will benefit roadways by reducing closures and increasing emergency response times during storm events. Incidental benefits included water quality improvements and increase groundwater recharge through infiltration devices and ponded water. Project will result in a net decrease in pumping cost from anticipated groundwater recharge raising groundwater elevations. Amount is unknown and likely to be

small. Project does not anticipate any long term increase in water demand or change in flood control pumping.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

The project has already undergone a rigorous alternatives analysis looking at impacts and benefits. A more in-depth project-specific analysis will occur if required as part of any grant funding.

12.5.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

Demonstrating the degree of benefit can be accomplished by quantifying the amount of time Hwy 1 will be open during given storm events (post-project) as compared to the pre-project closure times for the same storm events. Water quality and groundwater benefits are difficult to capture and quantify pre and post project benefits.

12.5.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

Project funding sources for this project include: San Luis Obispo Council of Governments (Urban State Highway and Regional State Highway Accounts), State Department of Transportation (Caltrans) and Housing & Urban Development (CDBG Program). County, Caltrans and OCSD are also working together to improve the Oceano area by developing programs to construct curb, gutter and sidewalk improvements in a concerted and public driven pattern.

(r) **Funding Mechanisms, Including Water Rates, etc.**

Capital Costs have been secured through Caltrans Minor Project funding; San Luis Obispo Council of Government - Rural and Urban Highway Accounts; a 2011 Community Development Block Grant; County Road Funds and an FAA Airport Administration Grant.

(s) **How O&M Costs for Projects will be Covered**

San Luis Obispo County Public Works road maintenance funds.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
SCNT_FLD2	Oceano Drainage Improvement Project - Hwy 1 & 13th Street	$1M-$5M	The County is supporting the community of Oceano, a DAC, in identifying and seeking funding sources for this project including: San Luis Obispo Council of Governments (Urban State Highway and Regional State Highway Accounts), State Department of Transportation (Caltrans) and Housing & Urban Development (CDBG Program)	Funding amounts are uncertain at this time	County and Caltrans will support long term maintenance of constructed drainage improvements
			Grant Monies (Prop 84/1E (Stormwater), 3rd Round)	None	

12.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

The chosen project provides the most cost-effective means of constructing and maintaining the proposed improvements. The proposed project is a gravity system which would require no on-going electrical source for operation purposes. The alternate projects would require an on-going electrical source in order to operate and maintain the inverted siphon.

Project 13. Lopez Water Treatment Plant Membrane Rack Addition

13.1 Project Number: SCNT_WMT1

13.2 Project Location: South County

13.3 Project Sponsor: District

San Luis Obispo County Flood Control and Water Conservation District

Source: Lopez Water Treatment Plan Evaluation Report (Kennedy Jenks, 2008)
http://www.slocountywater.org/site/Flood%20Control%20and%20Water%20Conservation%20District%20Zones/ZONE%203/Efficiency%20Assessment/pdf/Kennedy%20Jenks%20Lopez%20WTP%20Eval%20Final%20Report.pdf

13.4 Project Summary:

Five communities receive treated water from the Lopez WTP and are entitled to varying quantities of treated water. The percentage that each community is entitled to, and therefore, the degree of benefit is as follows: Arroyo Grande - 50%, Oceano - 7%, Grover Beach - 18%, Pismo Beach - 20%, and CSA 12 (Avila Beach) - 5%. The Lopez WTP is a membrane filtration plant designed to treat surface water from Lopez Lake, created by a dam built in 1969 along the Arroyo Grande watershed.

The Lopez Water Treatment Plant (WTP) Membrane Rack Addition **Project involves the construction of a new sixth membrane filtration rack**. Addition of the membrane filtration rack will increase the WTP's

filtration capacity enabling it to distribute **more water to Zone 3 Agencies (five communities)** and to provide **greater reliability**. Other capital projects are also on the planning horizon, such as installation of additional membrane filter modules. Though this project speaks to one specific capital project, the totality of capital projects will eventually realize greater system capacity and reliability, thus improving South County water resource management.

The current membrane filtration capacity of the Lopez WTP is not sufficient to provide Zone 3 communities with their peak demands with available surface water. Because of this capacity limitation, **these agencies pump groundwater, even when they have excess surface water entitlements and allocations** available to them. **Groundwater demands increase risk of saltwater intrusion and decrease availability of groundwater**. Groundwater quality is also not as good as treated Lopez water. This project would enable the Lopez WTP to provide enough treated water to meet peak demands, thus, reducing groundwater pumping and improving water quality.

The existing five membrane filter racks at the Lopez WTP require frequent and routine cleaning and maintenance, requiring certain racks to go 'off-line' for cleaning. Some cleaning requires two racks to be 'off-line' at the same time. During these types of cleaning and maintenance procedures, the Lopez WTP cannot produce peak contractual water allocation demands. The addition of an additional membrane filtration rack would allow cleaning and maintenance to occur while producing peak contractual water allocation demands.

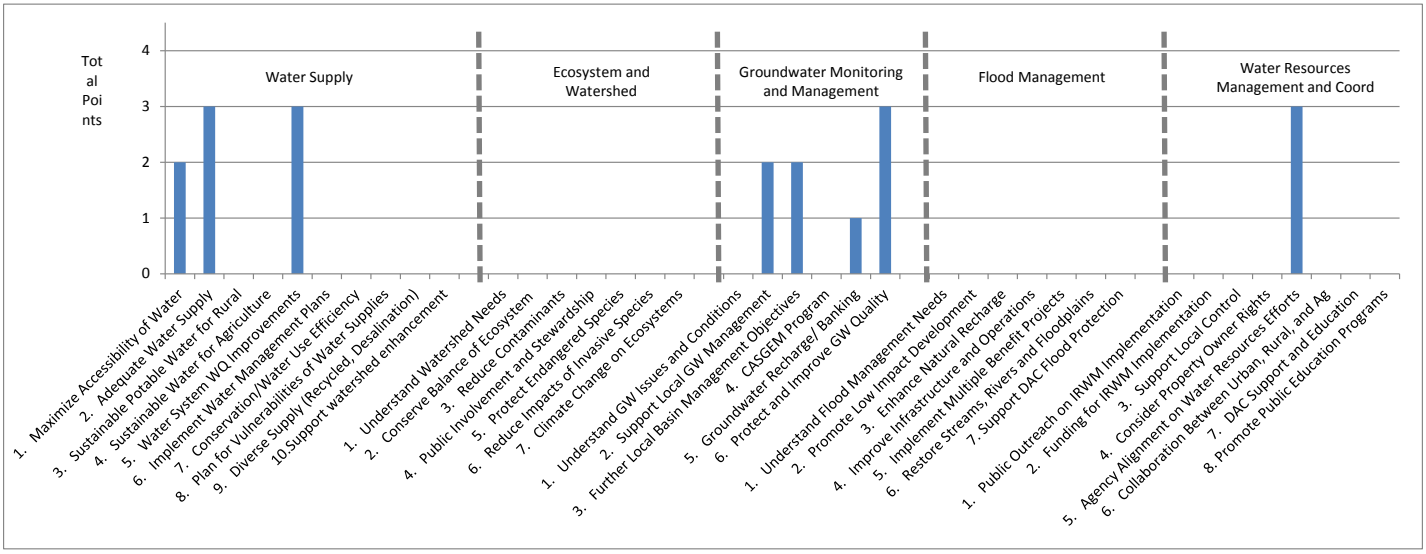
Operations and maintenance costs associated with the cost are estimated to be $7,000, annually. This cost includes additional operator time, chemicals used in cleaning, and electrical power.

Available Source Documents: *Zone 3 Urban Water Management Plan*

13.5 IRWM Plan Section Information and Analysis:

13.5.1 *Project Solicitation and Ranking*

How does the project:



(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:

Water Supply – **Adequate Water Supply**

Project enhances available surface water supplies to meet contractual obligations with the added benefit of reducing increased use of the deep aquifer system, currently threatened by sea water intrusion.

Water System Water Quality Improvements

Project reduces reliance on the deep aquifer system where sea water intrusion threatens drinking water supply wells.

Groundwater Management – **Protect and Improve Groundwater Quality**

Project reduces reliance on groundwater from deep aquifer wells where sea water intrusion is a priority concern.

Water Resources Management – **Agency Alignment on Water Resources Efforts**

The Project is identified as part of a regional solution in the fair apportionment of the groundwater basin yield and Lopez Lake contract amongst three water districts, and private rural and agricultural well owners.

Secondary Objectives

The project is a multiagency multi-benefit on many levels and makes the highest volume of supplemental water supplies (i.e., supplies other than groundwater) available at the time of year when the stress on the aquifer is at its highest in meeting public, private and agricultural demands. Achieving the best use of surface water operationally leads to assurances in meeting peak hour demands from customers and protecting groundwater from sea water intrusion. As one of five cities who benefit from this project, Oceano, a DAC, will benefit from this project to a low degree.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Increase Water Supply • Improve Water Quality	• Drinking Water Treatment and Distribution • Pollution Prevention	• Water and Wastewater Treatment • Water Supply Reliability • Water Quality Protection and Improvement • Groundwater Management	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	• Adequate Water Supply • Water System Water Quality Improvements • Protect and Improve Groundwater Quality • Agency Alignment on Water Resources Efforts

(c) **Technical Feasibility and Justification**

The project, as described, provides for the expansion of an existing surface water treatment plant where water supplies, inter-agency agreements, environmental clearance, land acquisition, permitting, and conveyance are in-place or already exist. The missing element of membrane capacity is a cost-effective method or increasing the use of available surface water supplies to fully optimize the existing conditions and reduce reliance on groundwater supplies identified as threatened by sea water intrusion.

The total cost is estimated at $650,000 with a projected 20 year lifecycle.

(d) **Benefit DACs**

The community of Oceano, a DAC, will benefit from this project by reduced risk to existing groundwater supplies from sea water intrusion, and improved redundancy during peak hour demand periods.

(e) **Environment Justice**

The project does not discriminate in any way against low income areas either in its construction, implementation and resulting water service.

(f) **Cost and Financing**

Cost is estimated as follows:

Capital Cost - $595,000

Labor Cost - $55,000

Annual O&M - $10,000

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D2 – Non-Monetized Benefits Analysis will likely be selected for the water supply quantity and quality benefits. The ability to assign benefits is tied to the ability to specifically measure the amount of supplemental water supply (supply other than groundwater) provided during peak hour conditions and year-round. Benefits will be quantified based on the cost of an imported supply such as SWP water or desalinization. Additional benefit can be attributed to the protection of groundwater supplies ensuring no loss of supplies occur. Long term O&M is expected with any water supply source added to the system.

(h) **Project Readiness to Proceed**

The project has gone through feasibility and preliminary design and is waiting for funding to begin design document. The sponsor currently has 30 percent funding to cover local match dollars. Project start date is June 2014 with end date of Jan 2015.

(i) **Strategic Implementation of the Plan and Project Merit**

The multi-objective elements of the water treatment plant expansion make this a good example where utility water system upgrades can serve existing demands with the ability to provide protection to existing

water supplies. Membrane treatment technology has become more popular since 2000 and can be constructed to reduce visual, sound and land use impacts.

(j) **Climate Change Effects**

The project's higher energy use is not anticipated to have climate change effects as a result of running additional membrane filters.

(k) **Reducing GHG compared to Project Alternatives**

No project alternatives were evaluated given the phased nature of the treatment plant.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

Yes, through reduced need for imported water supplies.

13.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Project is a Capital Project to expand an existing WTP at Lopez Lake. The project is expected to decrease the amount of groundwater pumping. The amount of reduced pumping costs in groundwater is assumed to offset the increase in treatment costs. The amount of additional water to be treated is not quantifiable until in operation.

The project is Categorically Exempt and was contemplated and accounted for in the initial construction design, permit and construction of the WTP facility. Preliminary design is complete. The project costs are included and accounted for in the County's 5-year budget. The construction of the project will be fully funded in FY 2014/15.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

A detailed analysis can be done if requested as part of grant funding.

13.5.3 ***Plan Performance and Monitoring***

(p) **What is Proposed Methods of Monitoring Project Performance**

Monitoring will be done through volumetric and rate of water treatment output during peak hour periods when filters are in a cleaning (or backwash) mode of operation.

13.5.4 ***Financing Strategies***

What is the plan for implementation and financing of project and programs, including:

(q) **Known and Possible Funding Sources**

County Flood Control Zone 3

(r) **Funding Mechanisms, Including Water Rates, etc.**

County Flood Control Zone 3 agency rates and fees, State and local Grant Funding

(s) **How O&M Costs for Projects will be Covered**

County Flood Control Zone 3 Agency rates

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
SCNT_WMT1	Lopez Water Treatment Plant Membrane Rack Addition	$500K-$1M	County Flood Control Zone 3 is responsible for funding capital projects (lake, WTP, and distribution system) through rates and fees to pay for local cost share and portion of capital costs to benefit five communities, one a DAC (Oceano 7%)	County Flood Control Zone 3 funding amounts will pay for local cost share and portion of capital funding	County Flood Control Zone 3, the operating entity of the Lopez WTP, can support project operations, maintenance, and replacement costs in perpetuity
			Grant Monies (Prop 84/1E (Drinking Water, Groundwater, Small Community Infrastructure), 3rd Round; WaterSMART)	None	

13.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

Project is considered to be the phased expansion of an existing project. Membrane plants do use a significant amount of energy, but the expansion is believed to be incrementally small in comparison to existing plant energy consumption.

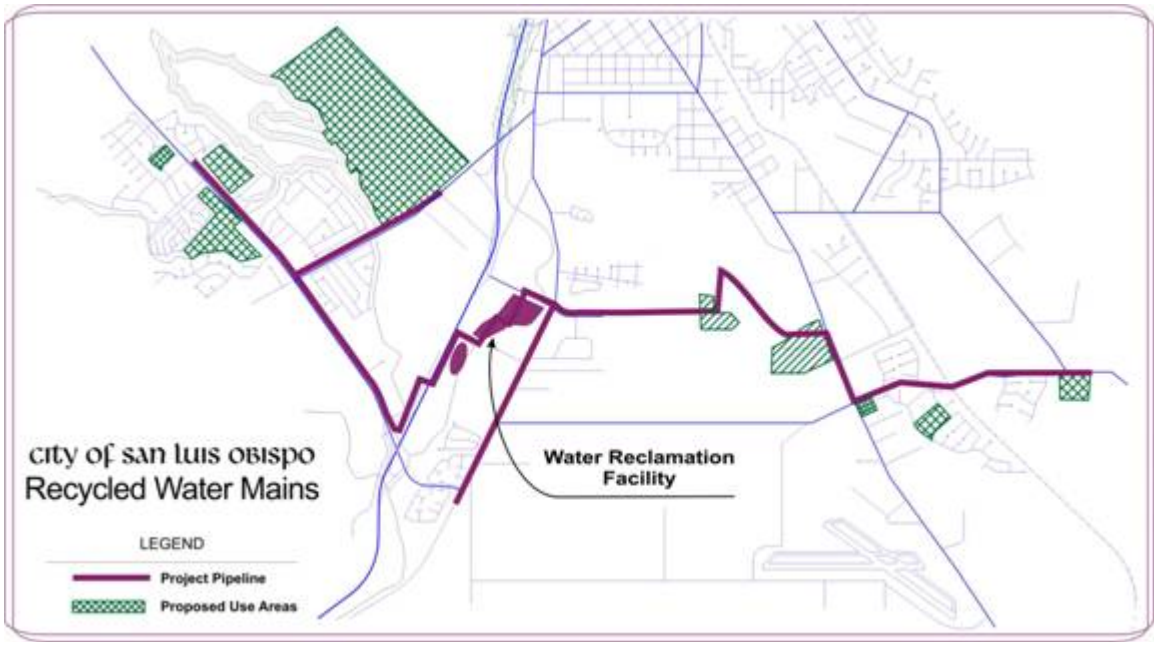
Project 14. Recycle Water Distribution System Expansion

14.1 Project Number: SCNT_WSP2

14.2 Project Location: South County

14.3 Project Sponsor: City of SLO

City of San Luis Obispo



Source: http://www.slocity.org/publicworks/recwater1.asp

14.4 Project Summary: [is groundwater a summer peaking supply or year round? What is cost to treat versus other supplies? Other Incentives to connect?]

The project proposes to **extend the City's recycled water distribution system** from the existing 14-inch ductile iron recycled water main on Madonna Road with **approximately 2,000 feet of new six-inch recycled water main** to serve CL Smith Elementary School. Recycled water mains would be installed along Oceannaire Drive, Lakeview Drive, and Balboa Street, to CL Smith Elementary school located at 1375 Balboa Street. A **new water service and water meter would be installed to serve the School's landscape**. Minor modifications would be made to the School's irrigation system **consistent with Title 22 requirements for signage and tagging of irrigation equipment**. CL Smith Elementary School will be served recycled water from the existing 600,000 gallon recycled water storage tank and pump station at the City's Water Reclamation Facility. The San Luis Coastal Unified School District's Grounds Maintenance personnel are trained in the use of recycled water as Laguna Middle School is currently served recycled water by the City.

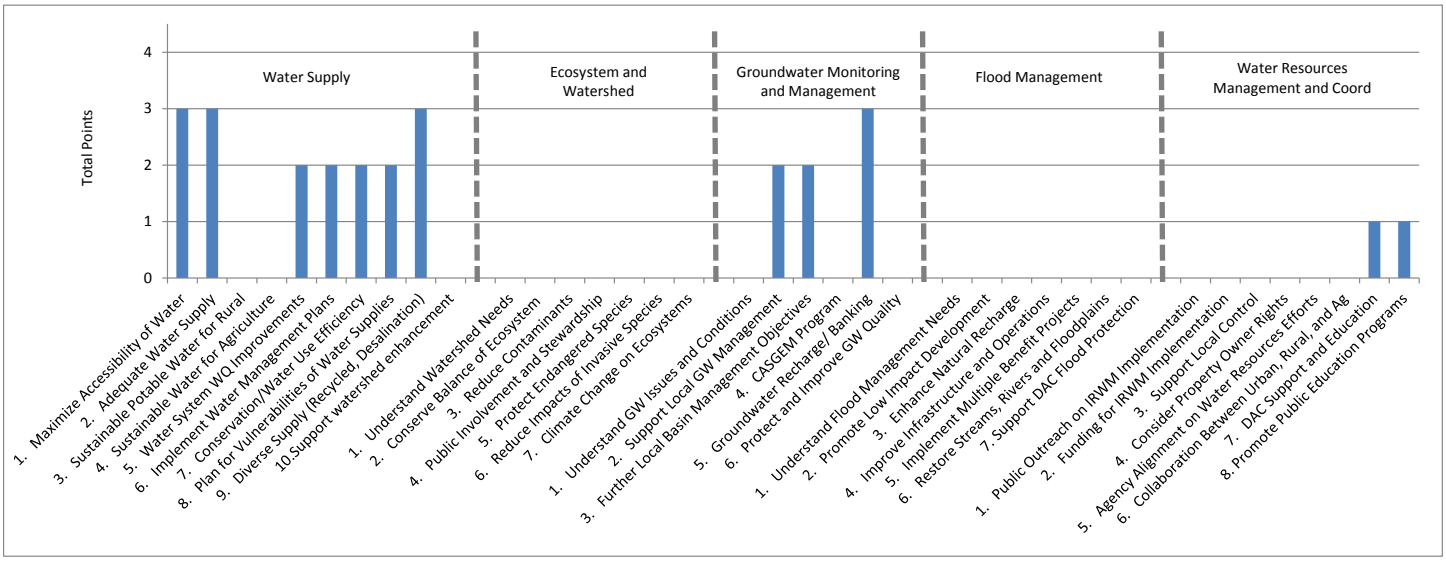
The City has been delivering recycled water for landscape irrigation purposes since 2006 when improvements at the City's Water Reclamation Facility were completed as well as the first eight miles of pipeline for the recycled water distribution system. Annual deliveries have increased from 77.17 acre feet in 2007 to over 170 acre feet in 2013 at parks, the middle school, golf course, sports fields, and other sites. The **City's goal is to deliver 1,000 acre feet per year of recycled water** through retrofitting existing irrigation systems and connections to serve new development in the City. Demand to provide recycled water for landscape irrigation exists proximate to the City's existing recycled water distribution system; however, extensions of the distribution system are needed to connect future customers. **CL Smith Elementary School was identified as a priority connection** as it is located proximate to an existing backbone recycled water main.

Available Source Documents: *City of San Luis Obispo Urban Water Management Plan; City of San Luis Obispo Annual Report on the General Plan*

14.5 IRWM Plan Section Information and Analysis:

14.5.1 *Project Solicitation and Ranking*

How does the project:



(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:

Water Supply – **Maximize Accessibility of Water**

Project implementation results in a higher beneficial use of treated wastewater with benefits of in-lieu recharge of groundwater for conjunctive use and drought protection.

Adequate Water Supply

Project provides new water to the City of San Luis Obispo, a DAC, and reduces reliance on constrained

groundwater supplies; especially, during the peak irrigation months.

Diversify Supply (Use of Recycled Water)

Project incorporates increased use of recycled water to supplement existing supplies of groundwater and surface water, and allows for further expansion in the future as a replacement supply for existing public outdoor irrigation demands.

Groundwater Management – **Groundwater Recharge/Banking**

With groundwater used predominantly as a peaking supply in high irrigation demand months, reduced use of groundwater through use of recycled water will provide for in-lieu recharge of the limited groundwater supplies to better provide for drought years when surface water supplies are constrained.

Secondary Objectives

With only 12 AFY of additional recycled water use, the scale of the project is not significant in comparison to larger recycled water projects; however, the project is a part of the City of San Luis Obispo's larger recycled water program and has multi-objective benefits to both reduced need for groundwater and surface water. Recharged groundwater provides better drought year protection and can help in adapting to climate change. From a public perception, recycled water has become better accepted and is typically seen as a prudent measure to ensure drinking water supplies and reduced rationing in dry and critical years. Decreased surface water from Whale Rock allows for exchanges with coastal communities where sea water intrusion is a critical concern (i.e., Public Review Draft of Los Osos Basin Plan, August 2013)

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Increase Water Supply • Improve Water Quality	• Conjunctive Management and Groundwater Storage • Municipal Recycled Water • Matching Water Quality to Use	• Water Supply Reliability • Water Recycling • Conjunctive Use • Groundwater Management	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	• Maximize accessibility of Water • Water System Water Quality Improvements • Adequate Water Supply • Diversify Supply • Protect and Improve Groundwater Quality • Agency Alignment on Water Resources Efforts

(c) **Technical Feasibility and Justification**

The City has a multi-source water supply of which recycled water is one component. It is a goal of the City's General Plan Water and Wastewater Management Element to maximize the use of recycled water for approved uses, such as landscape irrigation. This project will result in the use of an additional 12 AFY of recycled water and provide opportunities for further expansion. Use of recycled water helps to conserve drinking water and promote sustainability by reducing the need to import water over long distances or pump the City's limited groundwater supply.

The City's 2004 Water Reuse Master Plan identifies the areas of the City to be served with recycled water, as well as potential customers and future recycled water demand. The Master Plan identified potential demand for 1,000 acre feet of recycled water as the distribution system expands. Since the completion of the Water Reuse Project in 2006, additional recycled water distribution pipelines have been installed as part of the City's Capital Improvement Program with new lines (or tie-ins) on Calle Joaquin (6" ductile iron pipe), Broad Street (10" ductile iron pipe), Madonna Road (4" ductile iron pipe), Capitolio Road (4" ductile iron pipe), South Higuera (12" HDPE and 10" ductile iron pipe), and Margarita (6" ductile iron pipe).

Demand to provide recycled water for landscape irrigation exists proximate to the City's existing recycled water distribution system; however, additional extensions of the distribution system can include future customers when they agree to switching over to less costly recycled water. CL Smith Elementary School was identified as a priority connection as it is located proximate to an existing backbone recycled water main. As an incentive for connection, recycled water is priced at 90% the cost of potable water. San Luis Coastal Unified School District is also an existing recycled water customer familiar with the Procedures for Recycled Water Use, caused this project to rank as the next extension to make to the recycled water system.

(d) **Benefit DACs**

The City of San Luis Obispo is listed by the state as a DAC.

(e) **Environment Justice**

The application of title 22 high quality recycled water does not create impacts or health concerns to low income areas. Benefits of the project are increased reliability in drinking water supplies during peak hour periods, and added drought year protection. The City's Recycled Water Program supports using the right quality of water for the highest beneficial use consistent with the State Resource Management Strategies.

(f) **Cost and Financing**

Estimated Capital Cost and Labor is estimated to be $400,000 with a projected 50-year lifecycle.

(g) **Feasibility through Economic Analysis**

Of the DWR methods for quantifying benefits, method Section D3 – Monetized Benefits Analysis has been selected based on the grant amount and the ability to monetize the benefits in terms of an annual dollar value for each year of the project's operation. The City's benefits are to be expressed as the cost of water saved by not having to import water.

(h) **Project Readiness to Proceed**

Upon funding, the City will complete land easements and design documents. Proposed project completion is estimated 2014/15.

(i) **Strategic Implementation of the Plan and Project Merit**

At its core, the project is a recycled water pipeline extension with the benefit of increased recycled water utilization in the City of San Luis Obispo, a state certified DAC. While the scale of the project is small, it falls under the umbrella of a City Water Reuse Plan. Further implementation of the plan over time attributes to reduced reliance on the constrained groundwater system, and less need for imported surface water supplies while matching water quality to use by putting highly treated wastewater to beneficial use. Secondary benefits can also be found in transferring surface water in wet/normal years to coastal communities where sea water intrusion is becoming critical.

(j) **Climate Change Effects**

The project does not contribute to or effect climate change. As a supplemental water supply, the project does offer climate change adaptation option.

(k) **Reducing GHG compared to Project Alternatives**

The use of the City's recycled water supply reduces the City's carbon footprint in that the distance recycled water is pumped from the Water Reclamation Facility requires less pumping than pumping surface water from one of the City's reservoirs (Whale Rock, Salinas, or Nacimiento), providing water treatment, and pumping to the City's potable water distribution system.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

The City does not use SWP.

14.5.2 ***Impact and Benefit***

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Project is a Capital Project to construct new recycled water conveyance facilities to increase recycled water use in the community. The anticipated increase in recycled water treatment and pumping is based on the projected build-out of the recycled WTP at 1,000 AFY with a 2013 demand of 170 AFY. The use of recycled water is intended to off-set groundwater pumping currently taking place. It is not certain if water intensive areas will be built as a result of recycled water being available. The assumption is that half of the recycled WTP's capacity will off-set existing groundwater pumping.

The project may result in short term impacts such as construction-related noise and traffic along Oceanaire, Lakeview and Balboa streets. The City's use of recycled water complies with NOAA NMFS requirements related to endangered species within the creek environment. As a condition of approval of the Water Reuse Project in 2005, the City is required to maintain a minimum average daily release, year-round, of treated effluent to San Luis Obispo Creek at a rate of 2.5 cubic feet per second (cfs), or 1.6129 million gallons per day (mgd) to provide satisfactory habitat and flow volume for anadromous fish species (steelhead trout) within the creek environment.

The project was determined to be Categorically Exempt from CEQA and a Notice of Exemption was prepared by the City's Community Development Department.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

Given the project inclusion in a much larger detailed Water Reuse Plan, no further analysis will occur.

14.5.3 *Plan Performance and Monitoring*

(p) **What is Proposed Methods of Monitoring Project Performance**

Monitoring will be based on the annual metered quantity of water provided to the CL Smith Elementary School.

14.5.4 *Financing Strategies*

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

The project will not have funding without a state or federal grant. Only priority projects replacing aged potable water infrastructure have access to the City's Water Fund at this time.

(r) **Funding Mechanisms, Including Water Rates, etc.**

State, federal, and local grant programs. No funding has been finalized to date.

(s) **How O&M Costs for Projects will be Covered**

The City's recycled water system O&M fund, covered by water rates, will pay for annual O&M costs.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
SCNT_WSP2	Recycle Water Distribution System Expansion	$250K-$500K	The City of San Luis Obispo, a DAC, can support the local cost share and provide in-kind services	In-kind labor from the City of San Luis Obispo and reporting costs are fully funded	The City of San Luis Obispo operations fund can support project operations, maintenance, and replacement costs in perpetuity
			Grant Monies (Prop 84 (Groundwater), 3rd Round; WaterSMART Program; could apply towards several recycling water grants)	None	

14.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

While no specific GHG study is available, the energy to provide recycled water is considerable less than alternative supplies, such as importing supplies from Lake Nacimiento or pumping groundwater.

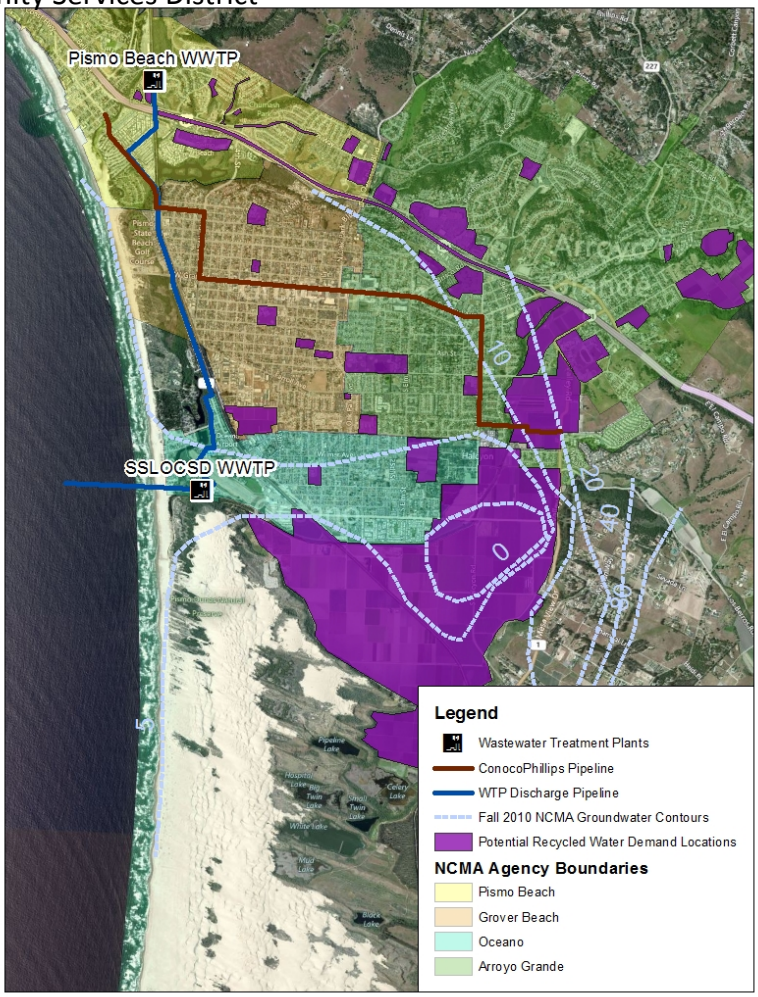
Project 15. Pismo Beach Recycled Water Treatment Plant

15.1 Project Number: SCNT_WSP4

15.2 Project Location: South County

15.3 Project Sponsors:

City of Pismo Beach including participation by the Cities of Arroyo Grande, Grover Beach and Pismo Beach and the Oceano Community Services District



Source: City of Pismo Beach

15.4 Project Summary:

The project includes the design and construction of a recycled water treatment and distribution system for the City of Pismo Beach (City). The project makes recycled water available for the City, and, in the future if excess recycled water is available, others in the South County Sub-Region. The project includes tertiary

treatment upgrades to the City's existing wastewater treatment plant (WWTP) facility and construction of a recycled water distribution system to deliver water to large public landscape irrigation customers. The first phase of the distribution system includes providing recycled water to Caltrans for irrigation along US 101. The City is partnering with adjacent agencies (i.e., implementation and financing) so, that in the future, a regional recycled water treatment program is possible in conjunction with the South San Luis Obispo County Sanitation District (SSLOCSD) to make additional recycled water available for the South County Sub-Region.

Possible future uses for recycled water include: groundwater recharge; agriculture irrigation; seawater intrusion barrier; stream flow augmentation; etc. The Project also addresses the need for increased supply reliability and drought preparedness by: 1) bringing a new water supply for beneficial use online, 2) improving operational flexibility and reliability of existing supplies, 3) creating a potential source of supply for groundwater storage projects, 4) maintaining and improving water quality of the groundwater basin through demand offset, 5) providing a potentially high quality supply source for augmenting environmental flows in local rivers and streams, 6) improving water-related needs of a DAC (i.e., Community of Oceano), and 7) implementing public education and outreach.

Available Source Documents: *City of Pismo Beach Water Reuse Study, May 2007, Carollo Engineers; Recycled Water Distribution System Conceptual Plan-City of Pismo Beach WWTP Technical Memorandum, June 2010, Wallace Group; 2010 Urban Water Management Plan-City of Pismo Beach; Spanish Springs Draft Specific Plan; Recycled Water Facilities Planning Study-State Water Resources Control Board Water Recycling Funding Program Grant; Pismo Beach Recycled Water System Conceptual Cost Estimate, June 2009, RRM Design Group*

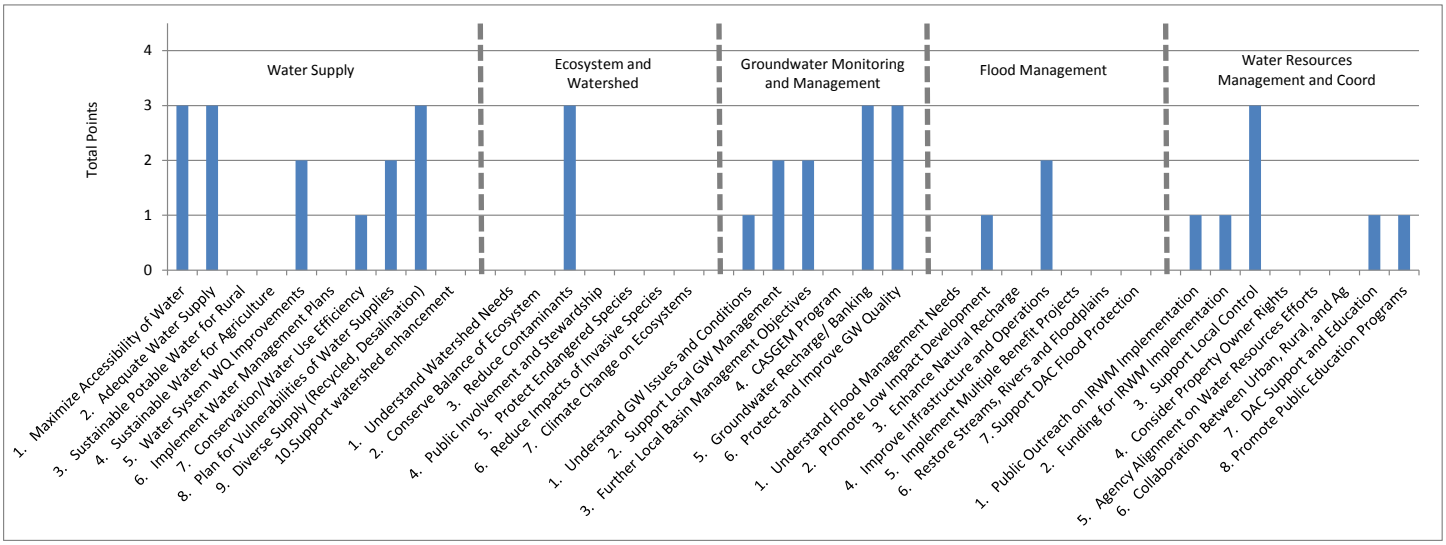
15.5 IRWM Plan Section Information and Analysis:

15.5.1 *Project Solicitation and Ranking*

How does the project:

(a) **Contribute to Plan Objectives**

Project satisfies the following Objectives:



Water Supply – **Maximize Accessibility of Water**

Project implementation results in a higher beneficial use for treated wastewater. Conservation and conjunctive use of drinking water supplies is achieved through replacing outdoor water supplies used for irrigation with a new recycled water source of supply.

Adequate Water Supply

With the offset in use of drinking water supplies for outdoor irrigation during the peak summer months, the City's current sources of drinking water (i.e., SWP and Lopez Reservoir) can be better managed for month to month and year to year allocations based on hydrologic conditions while protecting these sources of supply as a sustainable means of meeting existing demands and providing service for future growth.

Diversify supply (Recycled Water)

Project results in a large step toward maximized use of treated wastewater as a source for outdoor irrigation in the region, and for new developments planned to annex to the City of Pismo Beach.

Ecosystem – **Reduce Contaminants**

Project will reduce the volume (i.e., maximum allowable discharge is permitted by a Waste Discharge Permit) of treated water effluent (i.e., a point source of contaminants) from the City's WWTP outfall to the Pacific Ocean through creating an alternative method of treatment, and increasing water quality to potentially provide higher quality water for environmental benefits in fresh water streams and rivers.

Groundwater Management – **Groundwater Recharge/Banking**

The Project is a potential conjunctive use solution, by ultimately reducing groundwater pumped in the South County Sub-Region, creating a source of drought year supply for the Sub-Region when local surface water and SWP allocations are reduced.

Protect and Improve Groundwater Quality

Project reduces any reliance on groundwater supplies already impacted by salt water intrusion allowing for recharge of freshwater as a barrier for reducing and turning back the rate of movement of the salt water front.

Water Resources management – Support Local Control

The project has the political and financial support from multiple local agencies potentially benefitting from the introduction of the project's new source of water.

Secondary Objectives

The merits of the project as an educational tool and use as a model for similar small communities have the potential for long term benefits on a regional scale. The vision of recycled water use and planning already taking place for further expansions is a significant project feature.

(b) **Relate to WMS, RMS and Objectives**

SLO Recommended Project Elements are identified as follows:

DWR State Objectives	DWR RMS	SLO WMS	SLO Recommended Project Elements	IRWM Objectives
• Increase Water Supply • Improve Water Quality	• Conjunctive Management and Groundwater Storage • Municipal Recycled Water • Matching Water Quality to Use • Land Use Planning and Management	• Water and Wastewater Treatment • Water Supply Reliability • Water Recycling • Water and Wastewater Treatment • Conjunctive Use • Land Use Planning • Groundwater Management	• Develop and improve water and wastewater treatment facilities to reduce point source discharges of contaminants to natural streams. • Develop and Improve methods of water reuse within a community. • Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Seek outside funding for water and flood control projects in low income areas.	• Maximize accessibility of Water • Adequate Water Supply • Diversify Supply • Reduce Contaminants • Groundwater Recharge/Banking • Protect and Improve Groundwater Quality • Support Local Control

(c) **Technical Feasibility and Justification**

The City of Pismo Beach is currently processing a large new development application currently titled, the Spanish Springs Annexation. Should this development be approved, recycled water service can be implemented beyond the previously indicated existing locations to better serve proposed parks and golf courses. Additionally, the City's 2010 Urban Water Management Plan anticipates reuse as a component of the City's water conservation plan. Based on a 2007 Water Reuse study, the City's 2010 Urban Water Management Plan, a Water Supply Assessment for the proposed Spanish Springs development, and subsequent input from local stakeholders, additional evaluation became warranted to further develop the recycled water alternative.

The City identified several benefit areas for further study including evaluating use of recycled water for in-lieu recharge of the local groundwater basin, the creation of a seawater barrier to mitigate ongoing seawater intrusion, and the general reduction of dependency on imported State Water Project supplies by offsetting and optimizing existing potable water use supplies.

In 2012, the City obtained a grant through the State Water Resources Control Board (SWRCB) to better define the necessary recycled water infrastructure that may:

- Offset and optimize potable water uses,
- Recharge the groundwater basin,
- Create a seawater intrusion barrier, and
- Relieve increased water demand due to "reasonably foreseeable" large new development projects.

The projected supply from recycled water is anticipated to start at about 1,450 acre-feet per year (AFY)

in 2015, but will be based on treated wastewater volumes and potential WWTP upgrade capacities. Should the proposed Spanish Springs Annexation be approved, the City could simultaneously perform WWTP upgrades and begin installation of recycled water delivery lines to the development. Implementation of recycled water use in Spanish Springs could serve as a primary alternative irrigation water source during peak seasonal demand, and can offset potable water used for outdoor irrigation [will Spanish Springs include residential front yard landscaping as well?].

The Pismo Beach WWTP is owned and operated by the City. The WWTP receives wastewater from the City's wastewater collection system and serves a population of residential and commercial customers entirely within the City limits. In 2000, the City adopted its Wastewater Treatment Plan Master Plan (WWTP Master Plan), which proposed upgrades to increase treatment capacity and treatment level to provide advanced secondary, or tertiary, treatment.

The City's wastewater flows are currently approximately 1,200 AFY; the City would like to use all of its treated wastewater effluent for recycled water applications. Recycled water treatment and delivery will be managed by the City. It is expected that the City will treat wastewater effluent to all applicable Title 22 standards, based on intended application (i.e., matching quality to use). The current design flow capacity of the WWTP is 1.9 million gallons per day (MGD). The average flow observed in 2010 was 1.09 MGD, while peak hourly flows were typically between 3 MGD and 4.5 MGD. Maximum peak hourly flows in 2010 were observed at 7.29 MGD and 6.06 MGD in December and January, respectively.

Effluent from the WWTP is currently discharged through a shared outfall to the Pacific Ocean. The ocean outfall has a total capacity of 8.5 MGD, of which the City is entitled to 44 percent. The WWTP operates under Waste Discharge Requirements (WDR) Order No. R3-2004-0051. Among other water quality limitations, the WDR states that discharge to the ocean outfall from the City's WWTP is not to exceed a monthly average of 1.9 MGD.

(d) **Benefit DACs**

The community of Oceano is a DAC that will directly benefit in the future, but not with initial phase of implementation. Any secondary groundwater benefits and freeing up of additional local sources of water supply will benefit Oceano and other small adjacent communities.

(e) **Environment Justice**

The project does not impact low income areas or in any way degrade the quality of life in low income areas.

(f) **Cost and Financing**

The City has been very active in acquiring the needed funding to support the project phases including planning, environmental, design, and is now seeking funding through the implementation phase. Multiple funding sources, now or in the future, have been identified as coming from the Cities of Arroyo Grande, Grover Beach and Pismo Beach, and the Oceano Community Services District.

The City received a grant ($75,000) from the State Water Resources Control Board (SWRCB) from its Water Recycling Fund Program to complete a Water Facilities Planning Study. To meet the funding match requirement of the SWRCB grant ($75,000), the City is using a portion of the funds obtained from the sale of State Water Project water through DWR's 2013-14 Multi-Year Program. Funding for future phases of the

project is envisioned to include contributions from grant/low interest loan programs, benefiting rate payers, neighboring agencies and other sources.

The City does plan on submitting an application for Round 3 of the Proposition 84 State Grant. Absent this type of grant funding, the project will likely need to be deferred until funding is available.

(g) **Feasibility through Economic Analysis**

The project is technically feasible and multiple studies have been completed to determine this project as the most feasible alternative and the most cost-effective. In the 2007 Carollo study there were multiple concepts analyzed including each concept's cost effectiveness and relative cost per acre foot delivered.

(h) **Project Readiness to Proceed**

The current schedule, with anticipated outside funding, is set for June of 2015. The project is in the process of obtaining permits, CEQA compliance, financing, and preparation of design documents.

(i) **Strategic Implementation of the Plan and Project Merit**

The project's multiple objectives span several regional IRWM Goals and serves as a substantial project with large local South County Sub-Region stakeholder support. The project addresses future water supplies for new growth while educating developers, and the local agencies, of the true cost of water if economic growth is to take place along the coastal regions.

(j) **Climate Change Effects**

While increased energy can be attributed locally to the higher energy use in providing tertiary treatment, the net gain is anticipated to be small when considering the potential off-set of energy needed for SWP coming from Northern California and treated at the Coastal Branch (Polonio Pass) Water Treatment Plant, local surface water supplies coming from Lopez Lake and treated via high energy microfiltration, and the required pumping of groundwater for supplemental supplies in drought years and for peaking during the high demand summer months.

(k) **Reducing GHG compared to Project Alternatives**

The recycled water project has no comparative alternative with the same high degree of local and regional benefits. Recycled water use has been determined in other California coastal communities as the first level of bringing new sources of water supply, while desalinization of Ocean Water is the third and most costly in terms of energy consumption.

(l) **Project Sponsor to adopt IRWM Plan**

Yes.

(m) **Reduce Dependence on Delta Supplies**

The City does plan on reducing SWP supplies, yet will continue to participate in the on-going SWP 2013-14 Multi-year Program to sale unused water entitlement, currently offered by CDWR, to benefit the project.

15.5.2 *Impact and Benefit*

Discuss:

(n) **Potential Impacts and Benefits of Project Implementation**

Project is a Capital Project to expand the City's existing WWTP. The project is expected to decrease the need

for drinking water based on existing service area demands for outdoor irrigation of public landscaped areas. The amount of reduced need for SWP and local surface water supplies is assumed to offset the increase in costs from the tertiary treatment process and separate "purple pipe" recycled water conveyance system. The amount of additional water supplies will vary by hydrologic year type, but is anticipated to be significant relative to existing demands. In addition, by reducing the peak hour demand in the drinking water supply system, future growth can occur without having to parallel or replace existing transmission mains.

Potential impacts included for CEQA review are: Transportation/Traffic (Less than Significant); Noise (Less Than Significant with Mitigation); Air Quality (Less Than Significant With Mitigation); Population/Housing (Less than Significant); Hillside Grading (Less than Significant with Mitigation); Public Services (Less than Significant with Mitigation); Utilities/ Service Systems (Less than Significant with Mitigation); Hydrology/ Water Quality (Less than Significant with Mitigation); Recreation (Less than Significant with Mitigation);etc.

(o) **When a more Detailed Project-Specific Impact and Benefit Analysis will Occur**

A detailed analysis can be done if requested as part of any grant funding.

15.5.3 ***Plan Performance and Monitoring***

(p) **What is Proposed Methods of Monitoring Project Performance**

Monitoring will be done through volumetric and rate of tertiary treated wastewater output during peak hour periods and over the year. Additionally, a percentage of the total potential water service area will be monitored to ensure any opportunities to extend the distribution system further to expand the service area.

15.5.4 ***Financing Strategies***

What is the plan for implementation and financing of project and programs including:

(q) **Known and Possible Funding Sources**

The total $4.7M estimated cost will be updated as part of the on-going Water Facilities Planning Study being completed under the SWRCB Grant. As described in sub-section (f) Cost and Financing above, a combination of local and state funding sources will be needed to implement the first phase of the project.

(r) **Funding Mechanisms, Including Water Rates, etc.**

Rates and fees will be used to the extent of the level of benefit to both existing and new customers.

(s) **How O&M Costs for Projects will be Covered**

The existing City O&M program for wastewater and water supplies covers costs associated with the tertiary treatment facilities and conveyance pipelines.

Project Code	Project Title	Project Cost	Question 1: Funding Source and % of Total Cost	Question 2: Certainty/Longevity	Question 3: O&M Finance Source
SCNT_WSP4	Pismo Beach Recycled Water Treatment Plant	>$5M	The City of Pismo Beach can support the local cost share and provide in-kind services	In-kind labor from the City of Pismo Beach and reporting costs are fully funded	The City of Pismo Beach operations fund can support project operations, maintenance, and replacement costs in perpetuity
			Grant Monies (Prop 84 (Groundwater), 3rd Round; WaterSMART Program; could apply towards several recycling water grants)	None	

15.5.5 *Climate Change*

(t) **Process that Considers GHG Emissions when Choosing between Project Alternatives**

No significant increase in energy consumption or GHG emissions will occur as part of this project. The Project would offset potable demands from the SWP, thereby reducing the GHG emissions embedded in the delivery of SWP water. The amount of reduced GHG emissions could be calculated based on reduced demands after implementation of the Project.

G-6 Project Selection Briefing Paper

A Briefing Report on the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Project List Update & Project Highlights

PURPOSE

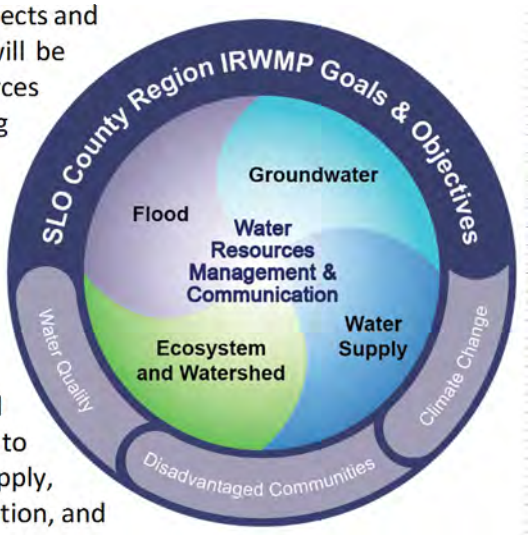
The purpose of this briefing report is to:

- Report on status of 2007 Integrated Regional Water Management (IRWM) Plan project list and/or seek input on each project's status and brief description
- Inform the region's stakeholders and project sponsors of the project selection results, including the results of the October 2013 RWMG Working Group integration workshop
- Solicit stakeholder and project sponsor comments regarding the content for either the final full and/or short project lists
- Solicit comments providing additional specificity and technical accuracy to the project descriptions and their impacts and benefits. *Note: Project Sponsors are currently reviewing a detailed report of the Project Short List for technical accuracy.*
- Provide a brief summary of how the final project short list (and its project "elements") help meet the Department of Water Resources (DWR) IRWM Guidelines

DWR has set a rigorous deadline for 2013 IRWM Plan completion. Thus our efforts are on a tight schedule, requiring comments on this report by **no later than 5:00 PM, November 26, 2013**. Please send comments to the PMT: Carolyn Berg (cberg@co.slo.ca.us) and Jon Goetz (jgoetz@geiconsultants.com). Within three (3) working days of receiving all comments, a brochure will be published to convey the final project list and the PMT will move forward with incorporation of the projects into the 2013 IRWM Plan sections.

INTRODUCTION

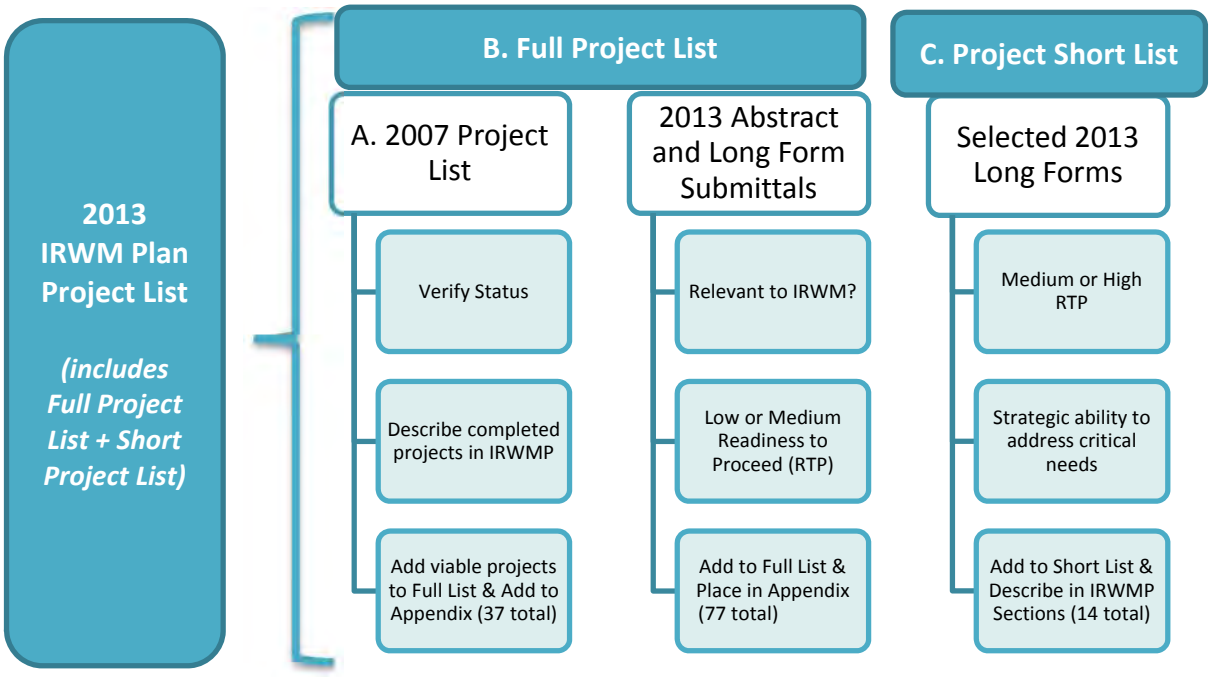
The San Luis Obispo County (SLO Co) IRWM Plan establishes goals related to water resources planning. The region's participants' and stakeholders' then implement projects and programs to achieve those goals. The IRWM Plan documents both completed and planned projects and programs, how those address goals, and specifically how each will be implemented. The IRWM Plan also maintains a list of water resources project/ planning concepts for stakeholders to consider over long term plan implementation.



SLO Co stakeholders have been actively engaged in the IRWM Plan update's project solicitation and review. From June to November 2013, the Project Management Team (PMT), under the direction of the Regional Water Management Group (RWMG), solicited water resources concepts and projects/programs from stakeholders. Agencies, organizations, and individual stakeholders submitted projects that would add value to SLO Co's integrated management of water resources: water supply, groundwater management, flood management, ecosystem restoration, and

general water resources management. As a result of this effort, 91 project[1] abstracts were submitted for PMT review.

The PMT reviewed and initially ranked these in accordance with the RWMG-approved project review guidelines (see IRWM website).[2] Some submittals were either not IRWM-related or were integrated into another project submittal. Of the 91 submittals, 77 were added to the Full Project List - 50 of those were classified as concepts[3], and 27 were classified as projects/programs. These projects have been added to the IRWM Plan Full Project List (see Section B), which also incorporates 37 concepts, programs and projects from the 2007 IRWM Plan.



These projects and the level of incorporation into the IRWM Plan are explained briefly below. This overview paper briefly describes the following:

A. 2007 IRWM Plan Project List
B. 2013 IRWM Plan Full Project List
C. 2013 IRWM Plan Short Project List
D. Next Steps
Attachment 1: Map of 2013 IRWM Plan Short Project List Locations
Attachment 2: 2013 IRWM Plan Short Project List: Summary of Project Elements

[1] Use of the term "project" in this report implies all three categories unless specifically called out as a project or program.

[2] <http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/>

[3] Concept refers to projects in the preliminary or planning stages. Projects/ programs have progressed beyond the preliminary planning stages.

A. 2007 IRWM PLAN PROJECT LIST

The 2007 IRWM Plan and related solicitations led to a list of concepts, projects and programs that aimed at addressing critical water resources needs. Over the past six years, some projects have been implemented, while others have remained as concepts or simply fell off of agencies' list. Based on a status review of each project, the projects' merits in meeting the updated Goals and Objectives, and the project sponsor's interest in pursuing the project, projects are being incorporated into the new project list. The intent is that projects remain on the IRWM Plan project list until they are built or an alternative project is submitted to fulfill the same, or similar, objectives.

The 2007 IRWM Plan project list (below) provides the full past project list and the current status of each. Certain projects have been completed or replaced by alternative solutions or change in water resources management priorities. Of these, 37 of the remaining projects have been added to the Full Project List (see Section B).

Definitions of the different status types are as follows:

Completed – Project has been completed or implemented.

Phased/ Ongoing – Generally refers to phased projects already underway and/or long term programs underway.

Full Project List – Project sponsor has submitted an updated project abstract for the 2013 IRWM Plan, or PMT judged the project and status as being viable for potential implementation.

2013 IRWM Project List – Project is included in the 2013 IRWM Plan Project List for incorporation into the plan sections.

Removed – Project has been removed from the IRWM Project list.

2007 IRWM Plan Project List and Status

Project Category and Title	2013 Project Status	Project Summary Statement
ECOSYSTEM RESTORATION		
Waterways Vegetation Management Program	Ongoing	Provides riparian vegetation, bank stabilization, and stream shading benefiting ecosystem restoration, water quality, flood protection, and aesthetics
Mined Lands Remediation Program	Ongoing	Supports Superfund National Priority Listing for and remediation of inactive/abandoned mining lands that adversely impact public health, water quality, and wildlife habitat.
Invasive Species Program	Ongoing	Provides opportunities for ecosystem preservation, public stewardship, natural resource conservation and integration into drainage improvement projects through utilization of native, drought tolerant plants and public outreach
ENVIRONMENTAL / HABITAT PROTECTION AND IMPROVEMENT		
Steelhead 4(d) Program	Ongoing	Develops and implements a Steelhead 4(d) program consistent with NMFS standards to improve water quality and fish and wildlife habitat.
Arroyo Grande Watershed HCP	Full Project List	Optimizes Lopez Lake Reservoir operations to balance retention of water for supply, release of water for ecosystem preservation, and riparian use.
Morro Bay Estuary Comprehensive Conservation and Management Plan	Completed (2013)	Implementation of these elements of the CCMP will protect, restore, and enhance the diverse habitats found in the estuary watershed and bay; promotes public awareness and involvement in estuarine management issues.
Attiyeh Ranch Conservation Easement Project	2013 IRWM Project	Acquire an 8,000+ acre conservation easement including 6 miles of the Nacimiento River and tributaries upstream of the lake; eliminates the development, subdivision potential, and land use intensification parcels.

Project Category and Title	2013 Project Status	Project Summary Statement
WATER SUPPLY RELIABILITY		
Nacimiento Water Project	Completed (2010)	45-mile long pipeline, 3 storage tanks, pump stations, and appurtenant facilities to convey raw water from Lake Nacimiento south to the communities of Paso Robles, Templeton, Atascadero, San Luis Obispo and Cayucos.
San Miguel CSD Water System Improvements	2013 IRWM Project	Provides a new welded steel water storage tank, new/ upgraded water transmission main and distribution mains to improve fire flow and service pressures and deliver drinking water meeting water quality standards
San Simeon CSD Water System Improvements	Full Project List	Replaces distribution piping and upsizes existing reservoir to provide adequate service pressures and fire protection under future conditions while increasing drinking water reliability and meeting water quality standards.
Lopez Water Treatment Plant Upgrade	Completed (2008)	Provides potable water supplies from the Lopez Lake reservoir to the communities of Arroyo Grande, Pismo Beach, Grover Beach, Oceano and the Avila vicinity via the Lopez Water Treatment Plant
Templeton CSD Water System Improvements	2013 IRWM Project	Installs and equips a new water supply well that draws from the Salinas River sub-flow and transmission piping under the railroad right of way for conveyance of water to the community distribution system
Cambria CSD Water System Improvements	Full Project List	Modifies their well system to mitigate contamination in their groundwater supply and meet drinking water standards, and upgrading their piping and storage facilities improve the reliability of their water supply to customers
County Service Area 23 (CSA 23) State Water Project Tie-In (Santa Margarita)	Full Project List	Construction of a State Water Pipeline (SWP) turnout and the approximately 65 feet of pipeline to the community of Santa Margarita. Provide a physical connection to CSA 23 for use during a drought or other water emergency.
Interlake Tunnel Project	Full Project List	Build tunnel between Lakes Nacimiento and San Antonio to allow the capture of watershed runoff (avoids release of thousands of AF of water released for flood control). Provides strategic release for downstream drinking/ groundwater recharge, seawater intrusion abatement, etc.
Design for the Installation of an Inflatable Rubber Dam Spillway Gate at Lopez Dam	Full Project List	Design and construction of an inflatable rubber dam spillway gate or a permanent spillway raise at the Lopez dam to raise the height of the dam, expand storage capacity and increase the safe yield of the Lopez Reservoir.
Heritage Ranch Emergency/Drought Water Supply Project	Removed; Replaced by 2013 submittal	Provide an emergency turnout from the Nacimiento pipeline which allows HRCSD to receive raw lake water for its water treatment plant, during extreme drought conditions when the Nacimiento Lake level is at dead pool elevation.
FLOOD MANAGEMENT		
Flood Control Zone 1/1A Waterway Management Program	Ongoing	Partially funded by Prop 84 Implementation grant. Increase the capacity of the leveed lower three miles of Arroyo Grande Creek while enhancing water quality and sensitive species habitat. Actions include raising levees, managing in-channel vegetation and reducing/managing sediment deposition.
Flood Control Zone 9 Waterway Management Program	Complete (2003)	Conduct an evaluation of the Edna Valley Groundwater Basin in order to establish its condition in terms of safe yield, hydrogeologic characteristics, overlying use, water quality and projected future use.
Federal Flood Insurance Program Compliance Study	Full Project List	Conduct a study to review how the region conforms to the Federal National Flood Insurance Program – determine the root cause of flooding problems, develop requirements for adequate creek setbacks, etc.
Flood Management Plan	Completed (2008)	Developed as a guide to implementing flood control projects; identify significant constraints affecting the ability to implement flood control projects and strategies to address the challenges.
Oceano Drainage Improvement Project – Hwy 1 & 13th Street	2013 IRWM Project	Construction of storm drain pipe, to convey drainage from the intersection of Highway 1 and 13th Street, and an outfall pond (sedimentation basin). Collects storm flows and allow debris/sediments settlement.
GROUNDWATER MANAGEMENT		
Nipomo CSD Salt Management Program	Full Project List	SNMP including strategies for managing water supplies to reduce salt input and identifies sources of salt in their wastewater collection system while implementing a pre-treatment program for non-residential dischargers.

Project Category and Title	2013 Project Status	Project Summary Statement
Los Osos Water System Improvements	2013 IRWM Project	Implements the following water system improvement projects, as identified in their Groundwater Management Plan and Water System Master Plan, to manage their groundwater supply and increase supply reliability and quality
Chorro and Morro Groundwater Basin Management Plans	Ongoing	Develops a resource and groundwater management plan for the Chorro and Morro Groundwater basins, including development of strategies to improve the watershed flow quantity and quality, and stream flows and underflows.
Edna Valley Groundwater Basin Study	Full Project List	Conducts an evaluation of the Edna Valley Groundwater Basin to establish its condition in terms of safe yield, hydrogeologic characteristics, overlying use, water quality and projected future use.
Groundwater Management Ordinance Study	Removed	Evaluates the feasibility of implementing a groundwater management ordinance by exploring terms of existing ordinances in other regions, local adjudication requirements and groundwater management plans or efforts, etc.
Development of a Groundwater Model and Activities within Santa Maria Valley Groundwater Basin	Phased; Characterization Study Underway (2013/14)	Study underway to conduct critical groundwater basin characterization activities in the Santa Maria Groundwater Basin (SMGB) to support development of a groundwater model and SNMP.
Paso Robles Groundwater Basin Model Update and Analysis of Potential Solutions	Completed (2013/14)	The District, in collaboration with the Paso Robles Groundwater Basin Steering Committee, will lead the effort to update the Paso Robles Groundwater Basin model (based on 1981 – 1997 data) to include data through 2011.
Paso Robles Groundwater Basin Salt and Nutrient Management Plan	Completed (2013/14)	Develop a complete SNMP for the Paso Robles Groundwater Basin to serve as model for the SLO Region and develop salt and nutrient management planning recommendations based on lessons learned and feedback from the RWQCB.
Development of Basic Salt & Nutrient Management Plans	Phased; Prioritization of basins study underway (2013/14)	Organized management of basins varies widely and there is a general lack of awareness of the RWQCB Recycled Water Policy (RWP). Identify the basin study areas where SNMPs are needed in the region, relevant stakeholders, etc
Upgrade of Water and Wastewater Systems, Operations, and Maintenance	Removed, Incorporated in other planning studies	Community-specific. Planning/ upgrade of systems, operations, & maintenance to decrease pumping of groundwater and establish a sustainable water system/portfolio. Elements covered by Groundwater Management Plan efforts.
Pilot Project Impact of Santa Margarita Lake Discharges on Groundwater Basin	Removed; Incorporated into other Project List submittals	NEED DESCRIPTION
RECREATION AND PUBLIC ACCESS		
Morro Bay Harborwalk	Completed (2010)	Constructs multimodal transportation improvements including enhancement and rehabilitation of 5 acres of coastal dunes, non-native species abatement, native restoration and storm water management.
STORMWATER CAPTURE AND MANAGEMENT		
Cambria Flood Control Project	Completed (2011)	Constructs a pressure storm drain system and pump station with an overflow bypass structure to alleviate flooding in Cambria, includes Santa Rosa Creek ecosystem enhancement and improved stormwater quality.
San Miguel Flood Control Project	Full Project List	Two phase implementation (by downstream and upstream) to collect and convey Salinas River 5unoff, includes a system of curbs, gutters, drop-inlets, constructed ditches, and underground storm drainage pipes.
Los Osos Community Stormwater Master Plan	Ongoing	Community-specific; anticipated to be done in conjunction with LOWWTP; there may be elements covered by consolidated watershed planning component.
WATER CONSERVATION		
Conservation and Open Space Element	Completed (2010)	Develop a comprehensive conservation element covering agricultural resources, air quality, biological resources, cultural resources, energy resources, mineral resources, open space resources, soils, visual resources and water resources.
Water Conservation and Erosion Control Education for SLO Co Vineyard Owners	Removed; Incorporated into other Project List submittals	NEED DESCRIPTION. Considered a project/design application. Suggest holding for implementation project solicitation process.

Project Category and Title	2013 Project Status	Project Summary Statement
WATER QUALITY PROTECTION AND IMPROVEMENT		
Atascadero Wastewater System Upgrade	Completed (YEAR)	Upgrades their wastewater treatment plant to ensure compliance with waste discharge requirements and construct new gravity pipeline to to improve water quality of water discharged back into Atascadero sub-basin
Avila Beach Wastewater System Upgrade	Unknown	Updates their wastewater treatment plant to ensure compliance with waste discharge requirements; improves the quality of the water before it is discharged into San Luis Creek and the ocean
California Men's Colony Wastewater System Upgrade	Completed (YEAR)	Upgrades the wastewater treatment plant to comply with waste discharge requirements and correct inflow/ infiltration problems that lead to treatment plant overflows. Enhance creek ecosystem and protect groundwater quality.
San Miguelito Wastewater System Upgrade	Unknown	Upgrades will potentially accommodate other local entities. Ensure compliance with waste discharge requirements. Improve effluent quality thereby improving source water quality and supporting the implementation of TMDLs.
Pismo Beach Wastewater System Upgrade	Completed (2006)	Upgrades wastewater treatment plant to comply with waste discharge requirements and correct capacity problems that lead to treatment plant overflows. Protect environment, support TMDL and stormwater programs, etc
Copper Piping Impact Study	Removed	Reviews impacts of copper piping in water distribution systems to implement policy to prevent negative impacts on drinking water supply and impacts on source water and the environment resulting from poor effluent quality.
Landfill Regulation Compliance Study	Removed	Reviews impacts of landfill operations on source water quality and ecosystems by documenting how they address TMDL and stormwater programs in complying with waste discharge requirements.
WATER RECYCLING		
San Simeon Wastewater Treatment Facility Upgrade	Completed (YEAR)	Upgrades existing wastewater treatment plant to from secondary to tertiary treatment (approved SEP) and will improve effluent quality. It will formally permit riprap armament and may include installation of seawall.
Morro Bay Wastewater Treatment Facility Upgrade	Completed (YEAR)	Upgrades to tertiary treatment; will provide increased treatment efficiency along with rehabilitation and modernization of the existing plant infrastructure as recommended by the RWQCB
Southland Wastewater Treatment Facility Upgrade	Completed (YEAR)	Retrofits an existing aerated lagoon wastewater treatment facility with wave oxidation technology to reduce nitrate discharge, installing headworks to screen out grit, and adds tertiary treatment to allow for recycled water use.
San Luis Obispo Reclamation Facility Upgrade	Completed (YEAR); Expanded distribution included as 2013 IRWM Project	Upgrading and adding various processes to increase capacity and to improve reliability and operational efficiency of the City's reclamation facility. Phase 2: add processes and equipment to remove nitrates from the treatment plant effluent and improve water quality.
South San Luis Obispo County Sanitation District Facility Upgrade	Covered by Regional RWSP (2013/14)	Upgrading its regional wastewater treatment plant to both meet waste and discharge requirements and allow for recycled water use in projects such a ecosystem enhancement and groundwater management. This meets implementation of inter-agency projects objectives.
Paso Robles Reclamation and Recharge Program	Ongoing; Construction underway	The wastewater treatment plant will be upgraded to tertiary treatment so the effluent can potentially be used for recharge, banking, irrigation, and/or ecosystem enhancement applications. Allow greater supply flexibility.
Recycled Water Master Plan Update	Full Project List	The City of SLO Recycled Water Master Plan Update will guide the expansion of the recycled water distribution system to serve users and maximize the use of available recycled water supply, thereby offsetting the use of potable water.
CSA 16 (Shandon) Water Reliability Project	Full Project List	Construct turnout facilities to connect the Coastal Branch of the State Water Project to the CSA 16 (Shandon) water distribution system.
Nipomo Area Water Reuse Plan	Unknown	Considered planning application; considered community-specific (Nipomo Mesa area of Santa Maria basin), but would work well in a collaborative recycled water planning proposal with a regional-scope.

Project Category and Title	2013 Project Status	Project Summary Statement
Supplemental Recycled Water Feasibility Study	Covered by Regional RWSP (2013/14)	The following agencies are investigating the feasibility of implementing recycled water programs within their service areas: Templeton Community Services District (TCSD), City of Morro Bay, City of Pismo Beach, South San Luis Obispo County Sanitation District (SSLOCSD), and Nipomo Community Services District (NCSD) via this Regional Recycled Water Strategic Plan (RWSP).
Preparation of a Recycled Water System Facilities Plan for the City of Pismo Beach	Covered by Regional RWSP (2013/14)	Covered by Supplemental RWSP study underway.
City of Morro Bay and Cayucos Community Services District (MBCSD) Recycled Water Master Plan.	Covered by Regional RWSP (2013/14)	Covered by Supplemental RWSP study underway.
San Simeon Small Scale Recycled Water Project	Full Project List	Title 22 Water available for distribution to offset potable water used for irrigation and hotel laundry use.
WETLANDS ENHANCEMENT AND CREATION		
Wetland and Vernal Pool Mapping	Ongoing; Limited data available (2007)	Map the region's wetlands/vernal pools to facilitate integration of enhancement measures into development and ecosystem restoration and mitigation projects. Some herbaceous wetland and critical habitat delineations mapped.
CONJUNCTIVE USE		
Paso Robles Groundwater Basin Water Banking Feasibility Study	Completed (2008)	Explored the feasibility of banking water in the Paso Robles Groundwater Basin for the benefit of County residents. This was considered a high-priority study with much potential because the Basin is the largest in the County and the Coastal Branch of the State Water Project (SWP) enters the County adjacent to the Basin.
Groundwater Recharge Optimization Program	Completed (2012); within Paso Robles Groundwater Management Plan	Compiles info on the optimal locations for recharge to improve regional water supply reliability and quality by using the other efforts/programs underway such as land use and watershed planning efforts, flood and storm water management; water banking feasibility studies; etc
DESALINATION		
Morro Bay Desalination Facility Upgrade	Completed (YEAR)	Installs an energy recovery system in its existing desalination facility to reduce electrical consumption; increases production capacity via reclaiming facility effluent; reduces dependence on State Water and local groundwater
Cambria Desalination Facility Project	Unknown	Constructs a seawater desalination plant that includes a subsurface seawater intake, pumping and pipeline facilities to transport seawater to the plant, a reverse osmosis (RO) treatment process, a groundwater blending system, etc
Desalination Study	Full Project List	Evaluates potential for desalination applications in the region by reviewing existing desalination facilities and existing study/project information to document opportunities for locations of new facilities.
LAND USE PLANNING		
Low Impact Development Program	Completed (YEAR)	Adopts LID requirements for new development and redevelopment that include wetland and riparian corridor protection and restoration, open spaces, stormwater retention, and utilization of smart growth principles.
Agriculture Element	Completed (2010)	Identifies areas of the region with productive farms, ranches and soils, and establishes goals, policies and implementation measures that will enable their long-term stability and productivity; identifies open space to protect; etc
NPS POLLUTION CONTROL		
Rural Road Erosion Program	Removed	Implements a program to monitor and reduce rural road erosion in order to protect source water quality; can be used to support implementation of TMDL and stormwater programs; will assist with locating or drainage problems
Morro Bay NPDES Illicit Discharge Detection and Elimination Ordinance	Unknown	Seeks to adopt an Illicit Discharge Detection and Elimination (IDDE) Ordinance, a requirement of the City's Stormwater Management Plan, to prevent illicit discharges to sensitive bay, creek and ocean habitats

Project Category and Title	2013 Project Status	Project Summary Statement
Lake Nacimiento Watershed Mercury Sediment Reduction Project	Completed (YEAR)	Includes a comprehensive site assessment, construction of three NPS MMP demonstration project sites designed to eliminate mercury sediment and acid rock drainage inputs and MMP effectiveness monitoring
WATERSHED PLANNING		
Data Enhancement Plan	Completed (2008)	Regional water monitoring program designed to provide data for planning, design, and operational purposes; data frequently interpreted to identify monitoring sites that might be dropped from the network or sampled less frequently, identify spatial gaps or the need for more frequent data collection.
Master Water Report	Completed (2012)	Develop region-wide study analyzing supply and demand by evaluating potential for new supplies; identify deficiencies and recommend projects, policies and programs to address those deficiencies.
Regional Permitting Plan	Completed (2008)	Develops regional permitting plan aimed at aligning Federal, State and local goals and objectives; establishes an orderly set of uniform conditions for projects to reduce processing time and increase consistency and effectiveness.
On-Farm Water Quality Enhancement and Conservation Plan for Coastal Watersheds	Full Project List	Prioritize planning and implementation projects on agricultural lands that address non-point source pollutants and the loss of riparian corridors. Integrate one or more agricultural BMPs such as irrigation efficiency
Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek	Full Project List	Design and implement floodplain projects in order to reduce downstream flooding and sediment loads, encourage groundwater infiltration, and expand riparian/ floodplain habitat.
Sustain SLO North: A Water Conservation Stewardship Plan for North County, San Luis Obispo	Full Project List	Considered planning application; considered regional (USLTRCD boundaries); would work well in a collaborative watershed planning proposal with a broader regional-scope.
Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed	Full Project List	NEED DESCRIPTION; Would work well in a collaborative watershed planning proposal with a broader regional-scope. Potential for collaboration with Cachuma RCD.
County-wide Fish Passage Barrier Evaluation	Watershed Management Planning Study (2013/14)	NEED DESCRIPTION; considered regional (each watershed in Region); would work well in a collaborative watershed planning proposal with a broader regional-scope; financial capacity unknown.
County-wide Approach to Understanding Instream Flow Needs	Completed (2013/14)	Help the SLO Region to better understand the instream flow needs of key species and environmental factors; improve the stakeholders' ability to better manage local water resources in a way that considers environmental stewardship.
WATER AND WASTEWATER TREATMENT		
Atascadero Lake Treatment System	Ongoing	Installs a treatment system for urban lake; improve water quality; provide opportunities for implementing stormwater and TMDL programs
Paso Robles Water Treatment Plant Project	2013 IRWM Project	Constructs a treatment plant to reliably deliver water that meets all drinking water standards to its customers and facilitates conjunctive use between Lake Nacimiento and groundwater supplies
San Miguel CSD Wastewater Treatment Expansion	Completed (2009)	Expand existing wastewater treatment plant capacity (influent lift station, four aeration ponds, three effluent percolation ponds, etc to comply with waste discharge requirements and ensure adequate capacity during storm events
Templeton CSD Wastewater System Expansion	2013 IRWM Project	Expands existing treatment plant (including AIPS ponds) to accommodate buildout flows, ensure waste discharge and stormwater programs compliance; adding additional storage ponds for wet weather storage.
Los Osos Community Wastewater Project	Ongoing; Construction underway	Partially funded by Prop 84 Implementation grant; Includes gravity wastewater collection system and tertiary treatment facility intended for water reuse in the Los Osos Groundwater Basin and habitat site restoration, and roadway improvement.
Lopez Water Treatment Plant Membrane Rack Addition	2013 IRWM Project	Involves the installation of additional membrane filter modules in the existing five membrane filtration racks and the construction of a new sixth membrane filtration rack to increase its filtration capacity to provide greater reliability.

Project Category and Title	2013 Project Status	Project Summary Statement
Cambria Pump Station	Full Project List	Construct a new storm water pump station and outlet structure to pump floodwaters from the lowest part of West Village directly into Santa Rosa Creek, significantly reduce flooding in the sump area of the West Village of Cambria.
Interceptor Sewer System Replacement, Oak Shores, CSA 7A	Full Project List	Construct new gravity sewerlines, 8 lift stations, manholes, pipe bridges, and pump systems to replace the Eastside and Westside Interceptor Sewer System.
Oceano Community Services District Water System Improvements	Full Project List	Provide various water system improvements to the community of Oceano, to improve water supply reliability and to improve water quality.
Lopez Pipeline Improvements	Full Project List	Optimize Lopez pipeline delivery capacity, working in conjunction with project to install additional membranes at the Lopez Water Treatment Plant to increase the overall capacity of the Lopez Project and to improve the water supply reliability.
San Miguel Community Services District Water System Improvements	2013 IRWM Project	Provide various water system improvements to the community of San Miguel, to improve water supply reliability and to improve water quality.
Chorro Valley Master Water and Waste Water Plan	Full Project List	NEED DESCRIPTION
WATER TRANSFERS		
Nipomo CSD Supplemental Water Project	Phased; Phase 1 under construction (2013)	3 phased project constructs treatment facilities and pipeline to ultimately transfer 3,000 acre feet of supplemental water per year from Santa Maria to Nipomo. Phases will increase water supply to 645 AFY, 1,600 AFY, and 3,000 AFY, respectively.

B. 2013 IRWM Plan Full Project List

The table below includes all concepts and project/programs meeting the minimum requirements of an IRWM project. This Full Project List includes 37 relevant 2007 IRWM projects as well as 77 relevant and integrated 2013 project submittals. The list will be an appendix to the IRWM Plan, and will be updated on an as-needed basis (at a maximum of every two years). All projects included on this list are considered to be a part of the IRWM Plan and will be considered for future funding and implementation opportunities. The table includes the project title, sponsor, project category (e.g., concept, project or program) and primary IRWM benefit category. The sort order is first by Sub-Region or Multi-Regional category, then alphabetically.

Many of these project submittals contained opportunities for integration or consolidation. On October 16, 2013, the RWMG Working Group, Project Sponsors and Interested Stakeholders met to discuss the overall project solicitation process and results. The discussion resulted in identifying integration opportunities and developing an IRWM Plan project list. Following the meeting, the PMT combined this new integrated list with the 2007 IRWM Plan project list, as shown below.

If abstracts were integrated into one project, it will note which project submittals were combined under the column titled "project". For example, the Central Coast Vineyard Team and Upper Salinas Las Tablas Resource Conservation District integrated two project submittals. Their combined project title now reads: "***Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Ag BMPs*** *(integrated 2 submittals: Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin; North County Precision Irrigation Research Program_ Precision Agriculture)".*

IRWM Plan Update Full Project List

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	**Conservation Planning for Coastal Watersheds**	Coastal San Luis Resource Conservation District	Multi-Regional	Concept	Ecosystem
2013	**Agricultural Water Management and Conservation Program**	Coastal San Luis Resource Conservation District	Multi-Regional	Concept	Water Management
2013	**Closing Priority Conservation Data Gaps**	Coastal San Luis Resource Conservation District	Multi-Regional	Concept	Ecosystem
2013	**County-wide Watershed and Creek Signage**	Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)	Multi-Regional	Project	Ecosystem/Water Management
2013	**Countywide Watershed Planning Phase II**	Coastal San Luis Resource Conservation District	Multi-Regional	Concept	Ecosystem
2013	**Desalination Study**	Various	Multi-Regional	Concept	Water Supply
2007	**Development of Basic Salt & Nutrient Management Plans**	Various	Multi-Regional	Concept	Groundwater
2013	**Feasibility Study for Recycled Water for Agricultural Use**	Coastal San Luis Resource Conservation District	Multi-Regional	Concept	Water Supply
2007	**Federal Flood Insurance Program Compliance Study**	San Luis Obispo County Flood Control and Water Conservation District	Multi-Regional	Concept	Flood
2007	**Invasive Species Program**	County of San Luis Obispo	Multi-Regional	Program	Ecosystem
2013	**LID Pilot Program**	US-LTRCD	Multi-Regional	Program	Flood Management
2007	**Mined Lands Remediation Program**	San Luis Obispo County Flood Control and Water Conservation District	Multi-Regional	Program	Ecosystem
2013	**Raising Santa Margarita Dam**	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)	Multi-Regional	Concept	Water Supply/Groundwater
2013	**Rancher 2 Rancher Program**	Coastal San Luis Resource Conservation District	Multi-Regional	Concept	Water Management
2013	**Regional Implementation of Groundwater Management Activities**	Various (depends on basin)	Multi-Regional	Concept	Groundwater
2013	**SLO Communities Water Enhancement Program**	Central Coast Salmon Enhancement	Multi-Regional	Concept	Water Supply
2013	**Stormwater Rewards Rebate Program**	Coastal San Luis Resource Conservation District	Multi-Regional	Concept	Flood Management
2013	**Urban Landscape Water Management and Conservation Program**	Coastal San Luis Resource Conservation District	Multi-Regional	Project	Water Supply
2013	**Water Conservation Corps**	California Conservation Corps (CCC) – San Luis Obispo Center _ (Other Partners TBD)	Multi-Regional	Concept	Water Management
2007	**Waterways Vegetation Management Program**	San Luis Obispo County Flood Control and Water Conservation District	Multi-Regional	Program	Ecosystem
2007	**Wetland and Vernal Pool Mapping**	County of San Luis Obispo	Multi-Regional	Concept	Ecosystem
2013	**8th Street Upper Aquifer Well and Nitrate Removal Facility**	Los Osos Community Services District	North Coast	Project	Water Supply/Groundwater
2007	**Cambria CSD Water System Improvements**	Cambria CSD	North Coast	Project	Water Supply
2007	**Cambria Desalination Facility Project**	Cambria CSD	North Coast	Project	Water Supply
2007	**Cambria Pump Station**	San Luis Obispo County Flood Control and Water Conservation District	North Coast	Project	Water Supply
2007	**Chorro and Morro Groundwater Basin Management Plans**	Morro Bay National Estuary Program	North Coast	Concept	Groundwater
2013	**Chorro Creek Ecological Reserve Floodplain Restoration Project**	Morro Bay National Estuary Program	North Coast	Project	Ecosystem
2007	**Chorro Valley Master Water and Waste Water Plan**	City of Morro Bay	North Coast	Concept	Water Supply
2013	**Cambria Pump Station**	County of San Luis Obispo, Department of Public Works	North Coast	Project	Groundwater/Flood Management
2013	**Conservation Planning for North Coast Landowners**	US-LTRCD	North Coast	Project	Water Supply
2013	**County Service Area 10 – Clearwell Tank Roof Replacement**	San Luis Obispo County Flood Control & Water Conservation District	North Coast	Concept	Water Management
2013	**County Service Area 10A Water System Improvements** (Integrates 2 submittals: New 200k Gallon Storage Tank; and Storage Tank Roof Replacement)	San Luis Obispo County Flood Control & Water Conservation District	North Coast	Concept	Water Supply
2007	**Los Osos Community Stormwater Master Plan**	Los Osos CSD	North Coast	Concept	Flood

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	Los Osos Landfill Remediation – Pump and Treat	County of San Luis Obispo	North Coast	Concept	Groundwater
2007	Los Osos Water System Improvements	Los Osos CSD	North Coast	Project	Water Supply
2013	Los Padres CCC Center – Stormwater LID Treatment Project	Morro Bay National Estuary Program	North Coast	Project	Flood Management
2013	Morro Bay_Cayucos Sanitation District Salt and Nutrient Management Plan	City of Morro Bay	North Coast	Project	Groundwater
2007	Morro Bay NPDES Illicit Discharge Detection and Elimination Ordinance	City of Morro Bay	North Coast	Concept	Water Supply
2007	Morro Bay Wastewater Treatment Facility Upgrade	City of Morro Bay	North Coast	Project	Water Supply
2013	North Coast Watershed Plans	US-LT RCD	North Coast	Project	Ecosystem
2013	Rehabilitation_Installation of Retention Ponds in North Coast (store & release)	US-LTRCD	North Coast	Concept	Groundwater
2013	S&T Mutual Water Co_Golden State Water Co Intertie	S&T Mutual Water Company	North Coast	Concept	Water Supply
2007	San Simeon CSD Water System Improvements	San Simeon CSD	North Coast	Project	Water Supply
2007	San Simeon Small Scale Recycled Water Project	San Simeon CSD	North Coast	Project	Water Supply
2007	San Simeon Wastewater Treatment Facility Upgrade	San Simeon CSD	North Coast	Project	Water Supply
2013	SLO County Drought Protection & Climate Change Preparedness Pilot Project	GREENSPACE – The Cambria Land Trust	North Coast	Concept	Water Management
2013	Streambank Stabilization & Restoration in Santa Rosa Creek	US-LTRCD	North Coast	Project	Ecosystem
2013	Water Conservation Partnerships in Chorro Valley	Morro Bay National Estuary Program	North Coast	Concept	Ecosystem
2013	21st Street Reservoir Reconstruction	City of Paso Robles	North County	Project	Ecosystem
2013	Atascadero Creek Watershed Management Plan	City of Atascadero	North County	Concept	Flood Management
2007	Atascadero Lake Treatment System	City of Atascadero	North County	Project	Ecosystem
2007	Atascadero Wastewater System Upgrade	City of Atascadero	North County	Project	Water Supply
2007	Attiyeh Ranch Conservation Easement Project	Land Conservancy of SLO	North County	Project	Ecosystem
2013	Community Based Social Marketing – Paso Groundwater Basin Community (water quality & quantity)	US-LTRCD	North County	Project	Water Management
2013	County Service Area 23 (CSA 23) Water Reliability Program	County of San Luis Obispo – Public Works Dept	North County	Concept	Water Supply
2013	County Service Area 7A – Oak Shores – Interception Sewer System Replacement	County of San Luis Obispo	North County	Concept	Water Supply
2013	Creston State Water Project Turnout	Requires formation of Water Purveying Entity	North County	Concept	Water Supply
2013	CSA 16 (Shandon) Water System Improvements (integrate 4 submittals: Waterline – Replace Centre Street; Waterline – Upsize 1st Street; Waterline Loop N. 2nd to N. 3rd Streets; New Storage Tank)	San Luis Obispo County Flood Control & Water Conservation District	North County	Concept	Water Supply
2013	CSA 16 (Shandon) Water Reliability Project	County of San Luis Obispo	North County	Concept	Water Supply
2013	Emergency Water Turnout for Heritage Ranch CSD	Heritage Ranch CSD	North County	Project	Water Supply
2013	Evaluating land-surface subsidence and potential groundwater-storage losses as part of assessing proposed water banking sites in Paso Robles Groundwater Basin	USGS	North County	Concept	Groundwater
2013	Groundwater Monitoring Program and Modeling Program for the Paso Robles Groundwater Basin	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)	North County	Concept	Groundwater
2007	Interlake Tunnel Project	Nacimiento Regional Watershed Management Advisory Committee	North County	Project	Water Supply
2013	Nature Center & Conservation Hub	US-LTRCD	North County	Concept	Water Management
2013	North County Fertilizer Regions_ Precision Agriculture	US-LTRCD	North County	Program	Ecosystem

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	**North County Strategic Plan**	Institute for Advanced Technology & Public Policy, Cal Poly, San Luis Obispo	North County	Concept	Groundwater
2013	**Off Stream Storage within the North County**	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)	North County	Concept	Groundwater
2013	**Phase 2 – Lake Nacimiento Potable Water Treatment Plant**	City of Paso Robles	North County	Project	Groundwater
2007	**Pilot Project Impact of Santa Margarita Lake Discharges on Groundwater Basin**	Unknown	North County	Concept	Groundwater
2013	**Recycled Water Treatment and Distribution System – Phase 1**	City of Paso Robles	North County	Concept	Groundwater
2013	**Recycled Water Treatment and Distribution System – Phases 2_3**	City of Paso Robles	North County	Concept	Groundwater
2007	**San Miguel CSD Water System Improvements**	San Miguel CSD	North County	Project	Water Supply
2013	**San Miguel Flood Control Program**	San Luis Obispo County Flood Control and Water Conservation District	North County	Concept	Flood Management
2013	**Supplemental Water Supplies for Paso Robles Groundwater Basin** (integrates 5 submittals: Community Water Systems for Subdivided Regions Overlying the Paso Robles Groundwater Basin; Irrigation Distribution System at Paso Robles Airport Area; Paso Robles Groundwater Basin Restoration and Basin Recharge; Paso Robles Groundwater Basin In-Lieu Recharge Study and Preliminary Layout)	TBD	North County	Concept	Water Supply
2007	**Sustain SLO North: A Water Conservation Stewardship Plan for North County, San Luis Obispo**	US-LTRCD	North County	Concept	Water Supply
2013	**Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Ag BMPs** (integrated 2 submittals: Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin; North County Precision Irrigation Research Program_ Precision Agriculture)	Vineyard Team & US-LTRCD	North County	Project	Water Supply
2013	**Templeton CSD East Side Force Main and Lift Station Project**	Templeton CSD	North County	Project	Water Supply/Groundwater
2007	**Templeton CSD Water System Improvements**	Templeton CSD	North County	Project	Water Supply
2013	**Toad Creek flood control, restoration and basin re-charge**	US-LTRCD	North County	Project	Flood Management
2013	**Toad Creek Waterway Management Program**	SLO County Flood Control and Water Conservation District	North County	Concept	Ecosystem/Flood Management
2013	**Upper Salinas Watershed Plans**	US-LTRCD	North County	Project	Ecosystem
2013	**Vertical Well Project for HRCSD**	Heritage Ranch CSD	North County	Concept	Water Supply
2013	**Water-wise program (with target applied irrigation rates)**	US-LTRCD	North County	Project	Water Supply
2013	**Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed**	Coastal San Luis Resource Conservation District	South County	Concept	Ecosystem
2013	**Arroyo Grande Creek Channel Waterway Management Program**	San Luis Obispo County Flood Control and Water Conservation District, Central Coast Salmon Enhancement	South County	Project	Flood Management
2007	**Avila Beach Wastewater System Upgrade**	Avila Beach CSD	South County	Project	Water Supply
2013	**Beach Street Alley Waterline Replacement**	Oceano Community Services District	South County	Project	Water Supply
2013	**Conjunctive Use and Groundwater Banking Evaluation**	Oceano Community Services District	South County	Concept	Groundwater
2007	**Edna Valley Groundwater Basin Study**	Various	South County	Concept	Groundwater
2007	**Flood Control Zone 1/1A Waterway Management Program**	San Luis Obispo County Flood Control & Water Conservation District	South County	Program	Flood

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	**Flood Control Zone 3 – Lopez WTP Sludge Bed 1 & 2 Upgrades**	San Luis Obispo County Flood Control & Water Conservation District	South County	Concept	Water Supply
2013	**Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek**	Coastal San Luis Resource Conservation District	South County	Concept	Flood Management
2013	**Lopez Lake Spillway Raise Project**	Zone 3 Agencies (Cities of Arroyo Grande, Grover Beach and Pismo Beach, Oceano Community Services District and County Service Area 12)	South County	Concept	Water Supply
2013	**Lopez Pipeline Improvements**	Northern Cities Management Area (NCMA) Agencies: Oceano Community Services District (OCSD)_ City of Arroyo Grande_ City of Grover Beach_ City of Pismo Beach	South County	Concept	Water Supply
2013	**Lopez Water Project Habitat Conservation Plan**	San Luis Obispo County Flood Control and Water Conservation District	South County	Project	Ecosystem
2013	**Lopez Water Treatment Plant Membrane Rack Addition**	San Luis Obispo County Flood Control and Water Conservation District	South County	Concept	Water Supply/Groundwater
2013	**Mapping the saltwater_freshwater interface in southern San Luis Obispo and northern Santa Barbara County, California**	USGS	South County	Concept	Groundwater
2013	**Meadow Creek Restoration Plan** (integrates: Meadow Creek Flood Reduction)	Central Coast Salmon Enhancement (and Coastal San Luis RCD)	South County	Concept	Ecosystem
2013	**Mid-Higuera Bypass**	City of San Luis Obispo	South County	Project	Flood Management
2013	**Nacimiento Water Project Energy Recovery Turbine**	City of San Luis Obispo	South County	Concept	Water Management
2007	**Nipomo Area Water Reuse Plan**	Nipomo CSD	South County	Concept	Water Supply
2007	**Nipomo CSD Supplemental Water Project**	Nipomo CSD	South County	Project	Water Supply
2007	**Oceano Community Services District Water System Improvements**	Oceano CSD	South County	Project	Water Supply
2013	**Oceano Drainage Improvement Project – Hwy 1 & 13th Street**	County of San Luis Obispo, Department of Public Works	South County	Project	Flood Management
2007	**On-Farm Water Quality Enhancement and Conservation Plan for Coastal Watersheds**	CSLRCD	South County	Concept	Water Supply
2013	**Pismo Creek Watershed Program**	Central Coast Salmon Enhancement	South County	Concept	Ecosystem
2013	**Recycle Water Distribution System Expansion**	City of San Luis Obispo	South County	Project	Water Supply
2007	**Recycled Water Master Plan Update**	City of San Luis Obispo	South County	Concept	Water Supply
2013	**Regional Recycled Water System (Pismo Beach and SSLOCSD)** (integrates Pismo Beach Recycled Water System)	City of Pismo Beach	South County	Concept	Groundwater
2007	**San Miguelito Wastewater System Upgrade**	San Miguelito MWC	South County	Project	Water Supply
2013	**Santa Maria Groundwater Basin Model**	NCMA Agencies (Oceano Community Services District, Cities of Arroyo Grande, Grover Beach and Pismo Beach), Nipomo CSD	South County	Concept	Groundwater
2013	**See Canyon Watershed Management Plan**	Central Coast Salmon Enhancement	South County	Concept	Ecosystem
2007	**Southland Wastewater Treatment Facility Upgrade**	Nipomo CSD	South County	Project	Water Supply
2007	**Steelhead 4(d) Program**	Central Coast Salmon Enhancement	South County	Program	Ecosystem

D. 2013 IRWM PLAN SHORT PROJECT LIST

The Short Project List is an inventory of all projects and programs submitting a Long Form under the Phase 2 solicitation process. Concepts and/or projects that have a lower "readiness-to-proceed" are included in the Full Project List (Section B), but were not asked to submit a Long Form for consideration in the Short Project List below.

The Short Project List of projects identifies those projects/programs that are technically feasible and strategically suited to be fully described in the IRWM Plan. Projects listed in grey below submitted long forms, which will be included in the IRWM Plan update appendix; however due to reason stated in the table, that project does not have enough data or does not address enough objectives (per State Guidelines) to adequately incorporate information throughout the IRWM Plan update itself. That differentiation does not note a project as being less significant. It simply means that the project will not be incorporated into various IRWM Plan sections. All projects will still remain on the Full Project List, and are considered to be supported by this IRWM Plan.

A detailed project analysis compiled as a Project Review White Paper (PWP)[4] evaluated each project's strategic value in meeting the State Objectives and Resource Management Strategies, as well as the IRWM Plan's Water Management Strategies, and its Goals and Objectives. The PWP is a resource document developed for purposes of documenting detailed material to be used in populating the various IRWM Plan sections.

PWP No.	Project Code	Project Title	Primary Reason for In or Out of IRWM Plan
1	**MLTP_ECO1**	Livestock & Land Program	Included for its multi-objective regional benefits and water quality enhancement while gaining private property owner volunteer participation for purposes of environmental stewardship.
	MLTP_FLD1	Water Conservation Corps	Not included at this time due to low RTP.
	MLTP_WMT1	County-Wide Watershed Awareness Campaign	Not included at this time due to medium RTP and lower total Objectives-based point score.
2	**MLTP_WMT2**	LID Pilot Program	Included for its public education and outreach, as well as targets private property owners to volunteer and pay for LID projects with monetary rebate incentives.
3	**NCNT_ECO1**	North County Fertilizer Regions_ Precision Agriculture	Included for its wide public educational value and regional water quality benefits through volunteer participation by private property owners with reduced fertilizer cost incentives.
4	**NCNT_ECO2**	Attiyeh Ranch Conservation Easement	Included for public and environmental stewardship values; both resulting in the protection of the watershed and endangered flora and fauna species in the region.
	NCNT_FLD1	Upper Salinas watershed plans	Not included at this time due to medium RTP.
5	**NCNT_GWM1**	Atascadero Groundwater Basin Augmentation Expansion Project	Included because of the multi-objective elements of improving recycled wastewater for higher beneficial use as a source for groundwater recharge and potable supplies in the Salinas Underflow.
6	**NCNT_WMT1**	Community Based Social Marketing	Included due to its low cost high education value over a broad region, enlisting support of private property owners to take ownership of their environment, and improving sustainable farming and business practices.
7	**NCNT_WMT2** **NCNT_WMT3**	North County Precision Irrigation Research Program_ Precision Agriculture **and** Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin	Both projects are included for their wide public educational value and regional water demand reduction benefits over a critically impacted groundwater basin, and both offer change in irrigation practices through volunteer participation by private property owners with reduced pumping cost incentives. Integrated title: *Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Ag BMPs*

[4] TO BE AVAILABLE AFTER DEC. 2, 2013:
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/

PWP No.	Project Code	Project Title	Primary Reason for In or Out of IRWM Plan
8	**NCNT_WSP1**	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction	Included due to its maximizing existing supplemental water supplies in a critically impacted groundwater basin, and use as a conjunctive supply for drought protection and effects of climate change in the region.
9	**NCNT_WSP2**	San Miguel Critical Water System Improvements	Included due to the DAC need for critical water system improvements.
	NCST_ECO1	Water Conservation Partnerships in Chorro Valley	Not include at this time due to low RTP and low total Objectives-based point score.
10	**NCST_GWM1**	8th Street Upper Aquifer Well and Nitrate Removal Facility	Included for its multi-Objective values of managing a critical groundwater basin subjected to continuous degradation of water quality from septic systems (nitrates) and sea water intrusion, and the local collaboration between the agencies and public using a vetted management plan.
11	**NCST_FLD1**	Los Padres CCC Center – Stormwater LID Treatment Project	Included for its multi-Objective benefits of environmental stewardship, LID educational opportunities, and the conversion of private lands to restore a rich ecosystem of flora and fauna.
	SCNT_FLD1	Mid-Higuera Bypass	Not included at this time due to its medium RTF and low Objectives point score.
12	**SCNT_FLD2**	Oceano Drainage Improvement Project – Hwy 1 & 13th Street	Included due to multi-Objective elements of providing a DAC with health and safety along with water quality, groundwater recharge, and flood attenuation.
13	**SCNT_WMT1**	Lopez Water Treatment Plant Membrane Rack Addition	Included due to increased use of existing surface water supplies and reduction in groundwater use in a constrained groundwater basin shared by multiple agencies and private well owners.
20	**SCNT_WSP1**	Lopez Lake Spillway Raise Project	Not included due to low RTP.
14	**SCNT_WSP2**	Recycle Water Distribution System Expansion	Included due to increased recycled water use in a DAC with the benefit of reducing groundwater pumping in a constrained groundwater basin.
22	**SCNT_WSP3**	NCMA_NMMA Salt and Nutrient Management Plan (SNMP)	Not included at this time due to medium RTP.

Geographic significance of project selection is considered in project selection to ensure each Sub-Region is equally represented in the IRWM Plan. The figure in **Attachment 1** identifies the approximate location of the capital projects, and programs, typically spread across large areas, are positioned at the approximate center of the benefit areas.

E. NEXT STEPS

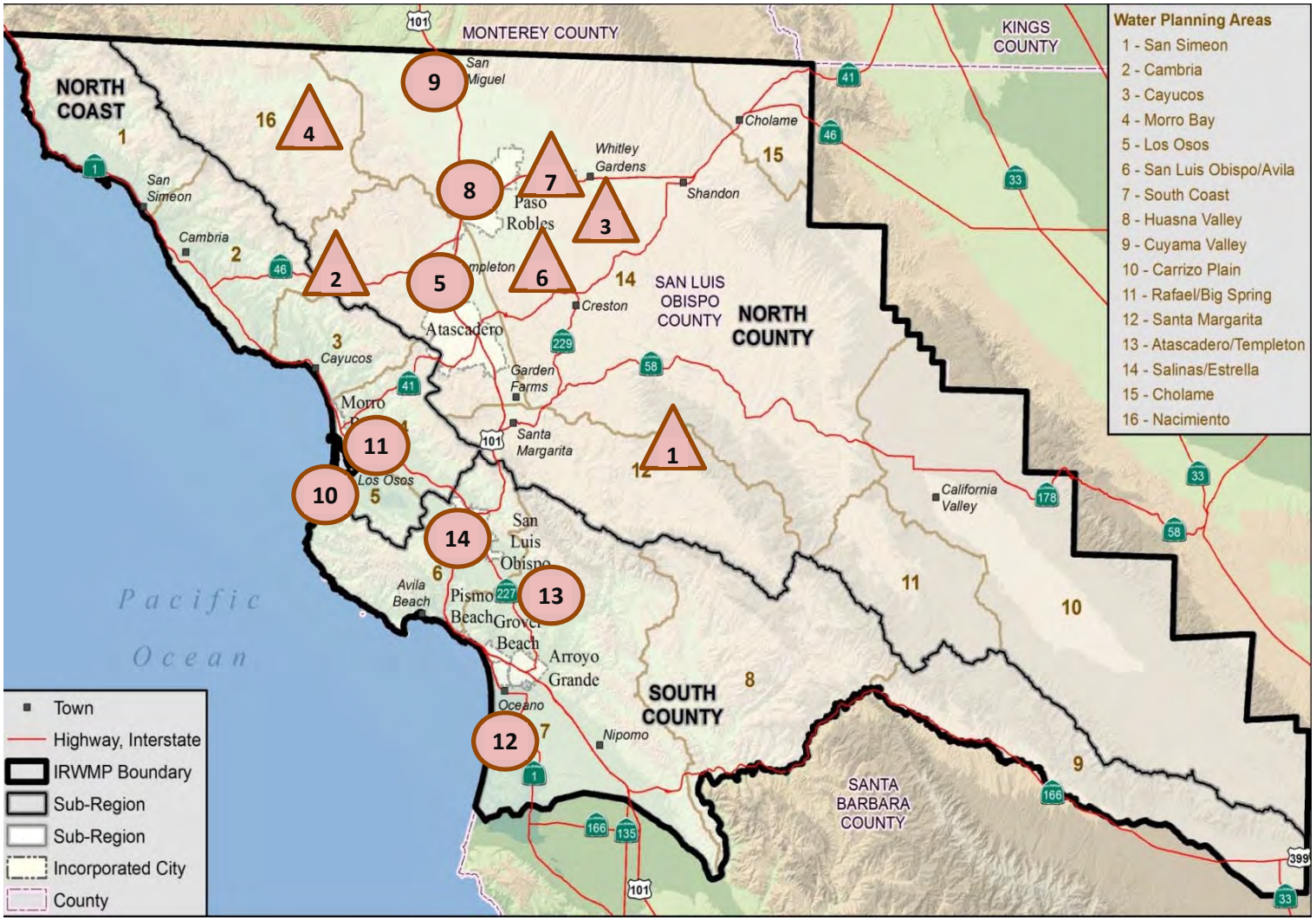
Upon receipt of all comments on November 26, 2013, the PMT will develop a Final Brochure to convey the results (and changes per RWMG review) to the RWMG. This will allow the PMT to incorporate project data into the complete Administrative Draft IRWM Plan by January/February and the Public Draft IRWM Plan by March/April. The RWMG and stakeholders can expect to receive the brochure electronically by December 4, 2013. The clear documentation of project review and selection is pivotal to meeting DWR requirements, and ensures acceptance of the IRWM Plan by the region's stakeholders upon final completion and adoption by the County Board of Supervisors and RWMG Member Agencies in June 2013.

ATTACHMENTS

1 - Map of 2013 IRWM Plan Short Project List Locations

2 - 2013 IRWM Plan Short Project List: Summary of Project Elements

ATTACHMENT 1 - Map of 2013 IRWM Plan Short Project List Locations



Programs ##

Projects ##

ATTACHMENT 2 - 2013 IRWM PLAN SHORT PROJECT LIST: SUMMARY OF PROJECT ELEMENTS

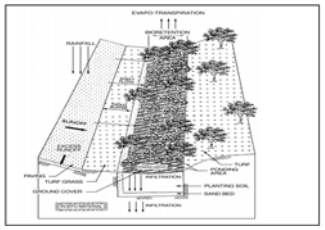
The following table of Project Technical Descriptions serves as a summary of the Project Elements, defined in the IRWM Plan as:

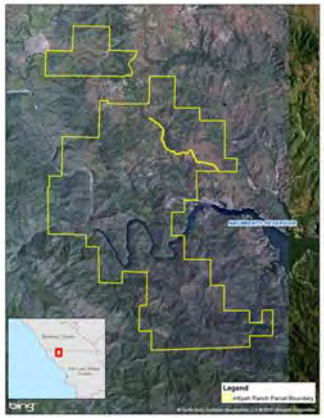
> *Project Elements are "building blocks" of region-specific activities derived from a thorough evaluation of the State's Resource Management Strategies (RMS) (**Section G – Resource Management Strategies**), and applied local Water Management Strategies (WMS), which consist of activities to promote the Goals and Objectives (**Section C –Goals and Objectives)** of the Updated Plan.*

The overlap of Project Elements amongst the selected projects illustrates the types of activities targeted for the IRWM region. The value of this understanding can further shape the high value projects or create additional and perhaps integrated projects where Project Elements are applied to several projects under one project/program umbrella. The synergism of combining related projects and sharing in the resources and learning from the combined efforts, are available if project sponsors want to improve the opportunity for outside funding. Additional detail for these opportunities and more information on each project is provided in the PWP.

SELECTED PROJECT TECHNICAL DESCRIPTIONS

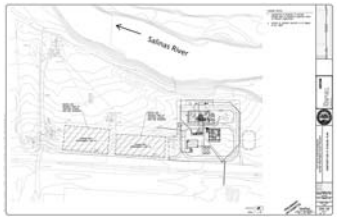
Project Title	Type	Project Elements	Technical and Strategic Summary
Livestock & Land Program	Educational Program	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination.	The Livestock and Land (L&L) Program addresses natural resource concerns faced by livestock owners by providing education, technical assistance and cost share for implementation of management measures. Water quality improvements will be achieved by giving livestock owners the tools to complete water quality site assessments and to implement Best Management Practices near listed waterways. The behavioral and management practice changes achieved by this program will provide immediate and lasting water quality and watershed improvements by reducing the off-site mobilization of manure, urine and sediments from livestock facilities. The program will make significant progress toward watershed goals listed in TMDLs and watershed plans.

Project Title	Type	Project Elements	Technical and Strategic Summary
LID Pilot Program 	Educational Program with Installation Drainage Devices to Optimize Irrigation and Groundwater Recharge	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Attenuate storm flows by increasing private property on-site retention and detention controls. • Provide public incentives to gain volunteer change in on-site water use and handling practices.	The Low Impact Development "Soak It Up" Rebate Program (Program) provides private property landowners in the North Coast and North County Sub-Regions rebates of up to 60% of the costs to install Low Impact Development (LID) features. The Program will include an education and outreach program available to all County residents regarding stormwater impacts of development and ways to reduce them. The US-LTRCD will provide free landscape assessments for property owners to determine appropriate LID strategies that can be implemented in order to reduce stormwater runoff and contamination. The property owner will receive a landscape assessment with site appropriate LID recommendations and plans. The property owner can build all or a portion of the LID features; and will pay for all costs of the installation. Those homeowners who build the features as per plan, pass an inspection, and sign a 10 year maintenance agreement with the RCD, can apply and receive up to 60% of the total project cost. The development of a LID grant program for private landowners will implement elements of local watershed plans with installation emphasis in severely drought affected watersheds, such as the Salinas River, Santa Rosa Creek, and San Simeon Creek. Strong support exists from both the civic community and the environmental community.
North County Fertilizer Regions_ Precision Agriculture 	Education Program with Changes in Fertilizing Practice	• Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	This project produces nutrient management recommendations based on fertilizer regions in the North County. Regions are identified using soil characteristics, since they have the most effect on nutrient management. Agricultural sites are chosen from applicants in these regions and three different packages of nutrient management BMPs and fertilizer programs will be implemented at each of 5 locations. The costs and benefits of the treatments will be compared and reported to interested parties, and demonstrated to the public through RCD-developed workshops and tailgate style demonstrations. BMP's and nutrient management programs will be evaluated by measuring soil and water nutrient concentrations before and after treatments are implemented. Recommendations will be based on economic, agricultural and environmental factors. Maps, recommendations and management plans will be created to be shared with the public.

Project Title	Type	Project Elements	Technical and Strategic Summary
Attiyeh Ranch Conservation Easement 	Conservation Easement for the Protection of Lands in Perpetuity	• Create and preserve natural ecosystems and protect endangered flora and fauna through Land Stewardship and Conservation Easement programs. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	Easement to protect against land uses to ensure the land is managed consistent with the project goals. Land use impacts without the easement include: • Subdivision • Construction of houses or other structures • Waste dumps • Grading and soil dumping • Surface and/or subsurface mineral development • Installation of new above-ground utility systems, including, without limitation, water, sewer, power, fuel, and communication lines and related activities and equipment, except for systems servicing permitted agricultural uses on the ranch and existing structures • Cutting or removal of native trees, shrubs, or other vegetation, except for continued reasonable land management purposes, and as may be necessary for elimination of diseased growth, fire protection, and similar protective measures, and to protect human safety

Project Title	Type	Project Elements	Technical and Strategic Summary
Atascadero Groundwater Basin Augmentation Expansion Project 	Recyled Water Use, Groundwater Recharge, and New Potable Supplies	• Develop and improve water and wastewater treatment facilities to reduce point source discharges of contaminants to natural streams. • Develop and Improve methods of water reuse within a community.	The Templeton Community Services District (TCSD) currently utilizes two wastewater treatment and disposal options. Approximately 220,000 gpd are sent to the Paso Robles WWTP for treatment and disposal directly to the Salinas River, and the remainder of effluent (150,000 gpd) is treated by the TCSD Meadowbrook WWTP and discharged at the Selby Ponds where the treated wastewater percolates into the shallow aquifer system and the Salinas River underflow (highly transmissive soils underlying the Salinas River laid down over time). The TCSD already has the permitted capacity to treat 600,000 gpd of wastewater at its Meadowbrook WWTP and discharge the treated wastewater at the Selby Ponds, inclusive of the redirected 220,000 gpd, per existing WDR Order No. R3- 2007-0029. The proposed Atascadero Groundwater Basin Augmentation Expansion Project proposes to utilize the entire wastewater generated by the TCSD to augment local groundwater supplies for beneficial use within the community. The project has a number of distinct components that make up the entire project. For ease of explanation, they are broken down below as follows: **East Side Force Main and Lift Station Project (ESFM Project):** • Cessation of conveyance by TCSD of any wastewater to the Paso Robles WWTP where the treated wastewater is discharged to the Salinas River; • The Templeton Community Services District (TCSD) proposes to re-route the treatment and disposal location. Pipeline construction along a 2.4 mile corridor; Concurrently with the planning and development of the East Side Force Main and Lift Station Project (ESFM Project), the Meadowbrook WWTP is undergoing intensive study and evaluation to optimize the treatment and quality of the effluent. Once the new lift stations and force mains are completed, the operation of the Meadowbrook WWTP will be operating under optimum conditions. The goal is to insure that the highest quality water is percolated into the groundwater basin. Tertiary treatment at the WWTP will also be added to provide an additional level of treatment required to improve the percolation rates, meet future recycled water needs within the basin, and to meet anticipated regulatory requirements. While current and future flow estimates are considered in the design of the West Side Lift Station, actual facility operations and equipment are to be upgraded to meet the increase in wastewater flows. The West Side Lift station, as well as the collection system downstream of the discharge point (Peterson Ranch Rd.) of the Project will be upgraded to accommodate current and planned future wastewater flows. The Meadowbrook WWTP currently utilizes a manual bar screen to prevent large debris from entering the AIPS pond system. An improvement in screening will improve the overall performance of the plant by preventing a larger percentage of inorganic debris from entering the process and increasing employee safety. This component will ensure system reliability, regulatory compliance and assist in meeting water quality objectives.

Project Title	Type	Project Elements	Technical and Strategic Summary
Community Based Social Marketing	Educational Program	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Provide public incentives to gain volunteer change in on-site water use and handling practices.	Severe water supply shortages and TMDL listings show that residents in the Paso Robles Groundwater Basin require urgent outreach to bring an understanding of how residents can participate in creating solution-oriented behavior changes for water conservation and basin sustainability. The US-LTRCD plans to implement a community-based social marketing campaign (CBSM) to address water quality as well as quantity. This pragmatic approach involves an interactive program identifying the barriers to a behavior that is debilitating to the Paso Robles Basin, developing dynamic and synergistic programs (and/or existing programs) to overcome these barriers, implementing an interactive program of education and outreach across the communities within the basin area and then evaluating the effectiveness of the program by tracking and establishing if behavior changes have occurred. The more direct involvement with the communities in the Paso Robles Basin area, the more we will foster more sustainable behavior. By developing and implementing this program, individuals, businesses and the agricultural community will be educated on the cause/effect relationship with actions within the homes and within business and farm practices that harm and deplete the area's water supply. This education will be paired with practical ways on how these behaviors can be modified to directly support the mission of reducing greenhouse gas emissions, water conservation and preservation while positively impacting climate change.
North County Precision Irrigation Research Program_ Precision Agriculture 	Education Program with Reductions in Irrigation Water Use	• Provide public education in the value of conserving water for purposes of achieving sustainable surface water and groundwater drinking water supplies. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	Irrigated agriculture is a large user of water and energy in San Luis Obispo County. This program develops benchmarks for energy and water conservation by identifying through pump efficiency and irrigation distribution uniformity analysis poorly performing irrigation systems. Applications will be accepted from growers willing to cost share system components, adjust management practices, and share findings and conclusions with the public. The Center for Irrigation Technology and Advanced Viticulture will aid in experimental design and control. Soil moisture meters and weather stations will be installed on 5 North County sites. The sites will be monitored for 2-3 growing seasons, and system performance evaluated by changes in crop yields, and water and energy use. The findings of this project will be made available to the public by reports, website outreach, and workshops generated by the US-LTRCD, Vineyard Team and Stockman's Energy. Growers who receive the systems will be able to keep the equipment, but will be required to pay for any ongoing costs after the research has been completed.

Project Title	Type	Project Elements	Technical and Strategic Summary
City of Paso Robles Lake Nacimiento Water Treatment Plant Construction 	New Water Treatment Plant	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Implement groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	The City of Paso Robles currently relies on water from two sources: Salinas River underflow wells and groundwater from the deeper formation of the Paso Robles Groundwater Basin. Significant groundwater level declines in City wells and other basin wells have been occurring since the 1990's. San Luis Obispo County has certified the basin as a Level of Severity III, indicating the demand for water will equal or exceed its supply before supplemental supplies can be developed. The Lake Nacimiento Water Treatment Project will provide additional potable water for the City of Paso Robles, enabling the City to reduce groundwater pumping within the overdrafted Paso Robles Groundwater Basin. City of Paso Robles water deliveries for 2005 and 2010 were 7,163 acre-feet per year (AFY) and 5,749 AFY, respectively. Water deliveries in 2010 were much lower than 2005 deliveries because of mandatory City-wide outdoor water use restrictions implemented in 2009. Level 2 of the City's Water Conservation Ordinance and Water Shortage Contingency Plan (See Attachment) was implemented to reduce summer peak water demands and thereby manage a projected water production shortfall of 20 percent. These restrictions will be lifted when the Lake Nacimiento surface water supply becomes usable by Paso Robles. As the projected customer water deliveries are expected to increase to 12,460 AFY in 2035 (2010 UWMP). City is committing to 4,000 AFY initially.
San Miguel Critical Water System Improvements 	System Improvements Including Backup New Generators	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Seek outside funding for water and flood control projects in low income areas	This project is seeking construction of six of the highest priority, critical water supply projects as listed below. The District needs to implement all six of these identified projects in the immediate future, or they will be faced with continued deterioration of an already deficient water system, and may not be able to support even limited beneficial growth with the identified deficiencies that face the District's water system. 1. **New Fire Hydrants and Wharf Head Replacements** – Thirteen (13) new fire hydrants to replace inadequate and aging hydrants. 2. **Well 3 Rehabilitation** - Well 3 is over 40 years old and requires upgrades in the well motor housing, disinfection system, electrical wiring, backup power generation and the protective structural building. 3. **New Water Well Siting Study** – Respond to the urgent need of replacing the San Lawrence Terrace Well, taken out of service because of high arsenic concentrations, and providing water supply redundancy in the event of an emergency shutdown of any three existing wells. 4. **Emergency Backup Power** – Equip Well 3 and Well 4 with power generators in the event of power failures to maintain a minimum supply of water during widespread power outages. 5. **New Water Storage Tank** – Construct the San Lawrence Terrace Water Storage Tank with 0.25 million gallons for capacity and water quality improvements. 6. **12th and K Street Water Main Upgrades** – Replace old and undersized piping at 12th Street and K Street.

Project Title	Type	Project Elements	Technical and Strategic Summary
8th Street Upper Aquifer Well and Nitrate Removal Facility 	New Treatment and Supply Well Facilities	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	The Los Osos Community Services District (LOCSD) is proposing to construct a new upper aquifer well and nitrate removal system at an existing water well facility in the community of Los Osos. The project includes installation of a new well with well pump, ion-exchange nitrate removal skid-mounted treatment system, pre-manufactured 600 square foot metal building, 5,000 gallon High Density Polyethylene (HDPE) tank, and various piping to connect the site's existing facilities to the new structures. The new well will be approximately 125 feet deep and it is estimated that the pumping capacity will be 150 gallons per minute (150 AFY). The new well will be drilled adjacent to the existing lower aquifer well at the 8th Street and El Moro Street Utility Water Yard location. Both the new and existing well heads will be enclosed in a new pre-engineered metal warehouse building along with the nitrate removal treatment equipment. The existing wellhouse for the lower aquifer will be demolished. Water from the new well will be pumped through the nitrate removal facility and then piped to the main LOCSD water distribution system. Brine from the nitrate removal ion exchange unit will be stored in a 5,000 gallon tank adjacent to the wellhouse building and periodically trucked offsite to an approved disposal facility. Based on the capacity of the new well pump, it is estimated that the brine tank will need to be drained approximately four (4) times per week. On August 5, 2008, the Court approved an Interlocutory Stipulated Judgment (ISJ) between LOCSD, Golden State Water Company, S&T MWC and the County. The ISJ formed a Working Group with the purpose of researching the current condition and uses of the Los Osos Groundwater Basin, and adopting a Basin Management Plan (Basin Plan) to resolve conflicting claims related to Basin water resources. The Basin Plan is the result of those efforts and is intended to fulfill the obligations of the Parties pursuant to the ISJ. As a member of the ISJ Working Group, LOCSD has identified certain projects that provide an overall benefit to the groundwater basin. This project will ultimately benefit all Water Purveyors in the Los Osos Basin (Golden State Water Company, S&T Mutual Water Co. and LOCSD) by reducing the pumping on the Lower Aquifer and increasing the production from the Upper Aquifer, which will help reduce sea water intrusion and reduce the risks to each of the water purveyor's water supply wells.

Project Title	Type	Project Elements	Technical and Strategic Summary
Los Padres CCC Center - Stormwater LID Treatment Project 	Education and Improved Ecosystem	• Develop methods of adapting to Climate Change and other vulnerabilities to the region's water resources. • Create and Preserve natural ecosystems and protect endangered flora and fauna through Land Stewardship and Conservation Easement programs. • Develop and Improve methods of water reuse within a community. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	The Los Padres Center Project represents a Low Impact Development (LID) implementation project at a scale and under ownership where research, education, and water resources management can take place concurrently within a self-contained ecosystem. While not a large project, the Los Padres Center Project does offer opportunities for land use agencies to see and understand the elements of LID The area of land that will be benefitting from Stormwater LID Treatments belongs to the National Guard and are leased by the California Conservation Corps (CCC). The CCC - Los Padres Center is a residential center where approximately 80 corpsmember reside. Participants are 18-25 years old and sign up for 1 year to work on conservation projects that teach them skills and earn educational scholarships to help them be employable when they leave the CCC. The Center is located next to Chorro Creek and Poison Ivy Creek. By implementing this project the corpsmembers will not only benefit by learning LID techniques, and the importance of water quality and water conservation but will also benefit by having a more livable area at the center that will thoroughly engage them in land stewardship that they will take with them when they move on. Chorro Creek and listed endangered species such as, steelhead and California red-legged frogs will benefit by a reduction in peak run-off that degrades water quality and quantity by creating detention basins keeping the water on the land longer before slowly discharging in Chorro Creek. Morro Bay National Estuary Program brings together citizens, local governments, non-profits, agencies and landowners to protect and restore Morro Bay. This project is a collaboration with the CCC and the National Guard to implement a demonstration project that will target action items outlined in their Comprehensive Conservation Management Plan that provides guidance on recovery actions that will result in restoring and protecting the Bay by improving water quality, enhancing steelhead habitat, conserving water and providing natural environments for citizens to enjoy. The CCC Stormwater LID Treatment project is an ambitious demonstration project which will focus on eliminating flooding at CCC Buildings while also increasing groundwater infiltration and habitat restoration by installing site specific topographical earthwork features. The project estimates that on-site earthwork and plumbing can mitigate over one million gallons of water on the project site while attenuating adjacent Chorro Creek storm surges through seven acres of habitat restoration. By widespread land cover and shade tree installation at 43% of the project site, groundwater recharge areas will be increased. Reducing energy costs and local water supply reserves, including recycled onsite water (greywater, rainwater, mechanical), will be utilized for irrigation and indoor non-potable water uses such as toilet flushing. Two constructed wetlands will contribute to the largest reduction in the large storm event runoff, while greatly improving stormwater quality and potential for recreational activities such as birding and onsite watershed education. Over 9280 native and food bearing plants will be planted to cool buildings and reduce energy use while greatly improving the aesthetic and educational environment for the resident CCC corps members and nearby San Luis Obispo residents. Seven "living areas" will be installed through placement of plantings and earthworks to reduce off-site travel of CCC Corps members and increasing onsite recreational and learning opportunities. This project aims to be a learning laboratory for the corps members and future watershed crews. The corps members will be active and included on the CCC Native Greenhouse onsite; installation of the earthworks: inclusion in the construction of infiltration basins and bioswales by directed CCC corps members; take a part in planting and maintenance of plants; and assist in plumbing irrigation of specific plants through recycled onsite waters (i.e., grey water and captured stormwater).

Project Title	Type	Project Elements	Technical and Strategic Summary
Oceano Drainage Improvement Project - Hwy 1 & 13th Street 	Drainage Project with Groundwater Recharge	• Attenuate storm flows and improve stormwater quality by increasing on-site retention and detention controls. • Seek outside funding for water and flood control projects in low income areas. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	The Project includes construction of approximately 1,500 feet of storm drain pipe, to convey drainage from the intersection of Highway 1 and 13th Street, and an outfall pond (sedimentation basin). The basin will collect storm flows and allow debris and sediments to settle out prior to discharge through the existing 36-inch culvert or a new box culvert located in the Arroyo Grande Creek levee. The project is located at the low point of an approximately 40.5 acre drainage shed area. The existing system is undersized for small storm events and as a result floods the Hwy 1 and 13th Street intersection and adjacent properties. The project will reduce the frequency of drainage issues at Hwy 1 and 13th Street by constructing drainage facilities that collect and convey flows to the Arroyo Grande Creek channel. The project will also lessen flows to the Meadow Creek Lagoon area, thereby_ helping to mitigate the existing drainage issues for downstream residences, businesses and the South County Sanitation District facilities. The project will reduce maintenance and storm related management of the surrounding area. It will improve access and circulation on Hwy 1 and adjacent roadways as well as increasing the efficiency of road operations and improve emergency response times for the surrounding area.
Lopez Water Treatment Plant Membrane Rack Addition 	Water Treatment Plant Expansion	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	Five communities receive treated water from the Lopez WTP and are entitled to varying quantities of treated water. The percentage that each community is entitled to, and therefore, the degree of benefit is as follows: Arroyo Grande - 50%, Oceano - 7%, Grover Beach - 18%, Pismo Beach - 20%, and CSA 12 (Avila Beach) - 5%. The Lopez WTP is a membrane filtration plant designed to treat surface water from Lopez Lake, a dam built in 1969 along the Arroyo Grande watershed. The Lopez Water Treatment Plant (WTP) Membrane Rack Addition Project involves the installation of additional membrane filter modules in the existing five membrane filtration racks and the construction of a new sixth membrane filtration rack. Addition of the membrane filtration modules and the membrane filtration rack will increase the WTP's filtration capacity enabling it to distribute more water to Zone 3 Agencies (five communities) and to provide greater reliability. The current membrane filtration capacity of the Lopez WTP is not sufficient to provide Zone 3 communities with their peak demands with available surface water. Because of this capacity limitation, these agencies pump groundwater, even when they have excess surface water entitlements and allocations available to them. Groundwater demands increase risk of saltwater intrusion and decrease availability of groundwater. Groundwater quality is also not as good as treated Lopez water. This project would enable the Lopez WTP to provide enough treated water to meet peak demands, thus, reducing groundwater pumping and improving water quality. The existing five membrane filter racks at the Lopez WTP require frequent and routine cleaning and maintenance, requiring certain racks to go 'off-line' for cleaning. Some cleaning requires two racks to be 'off-line' at the same time. During these types of cleaning and maintenance procedures, the Lopez WTP cannot produce peak contractual water allocation demands. The addition of membrane filter modules to the existing rack and an additional membrane filtration rack would allow cleaning and maintenance to occur while producing peak contractual water allocation demands.

Project Title	Type	Project Elements	Technical and Strategic Summary
Recycle Water Distribution System Expansion	Recyled Water System Expansion	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	The project proposes to extend the City's recycled water distribution system from the existing 14-inch ductile iron recycled water main on Madonna Road with approximately 2,000 feet of new six-inch recycled water main to serve CL Smith Elementary School. Recycled water mains would be installed along Oceannaire Drive, Lakeview Drive, and Balboa Street, to CL Smith Elementary school located at 1375 Balboa Street. A new water service and water meter would be installed to serve the School's landscape. Minor modifications would be made to the School's irrigation system consistent with Title 22 requirements for signage and tagging of irrigation equipment. CL Smith Elementary School will be served recycled water from the existing 600,000 gallon recycled water storage tank and pump station at the City's Water Reclamation Facility. The San Luis Coastal Unified School District's Grounds Maintenance personnel are trained in the use of recycled water as Laguna Middle School is currently served recycled water by the City. The City has been delivering recycled water for landscape irrigation purposes since 2006 when improvements at the City's Water Reclamation Facility were completed as well as the first eight miles of pipeline for the recycled water distribution system. Annual deliveries have increased from 77.17 acre feet in 2007 to over 170 acre feet in 2013 at parks, the middle school, golf course, sports fields, and other sites. The City's goal is to deliver 1,000 acre feet per year of recycled water through retrofitting existing irrigation systems and connections to serve new development in the City. Demand to provide recycled water for landscape irrigation exists proximate to the City's existing recycled water distribution system; however, extensions of the distribution system are needed to connect future customers. CL Smith Elementary School was identified as a priority connection as it is located proximate to an existing backbone recycled water main.

STRATEGIC CONSIDERATIONS

The first step in the project review process places each project into an Objectives filter where a scoring system is applied to determine where a project succeeds in satisfying the IRWM Plans Goals and Objectives.[5] The scoring system used is as follows:

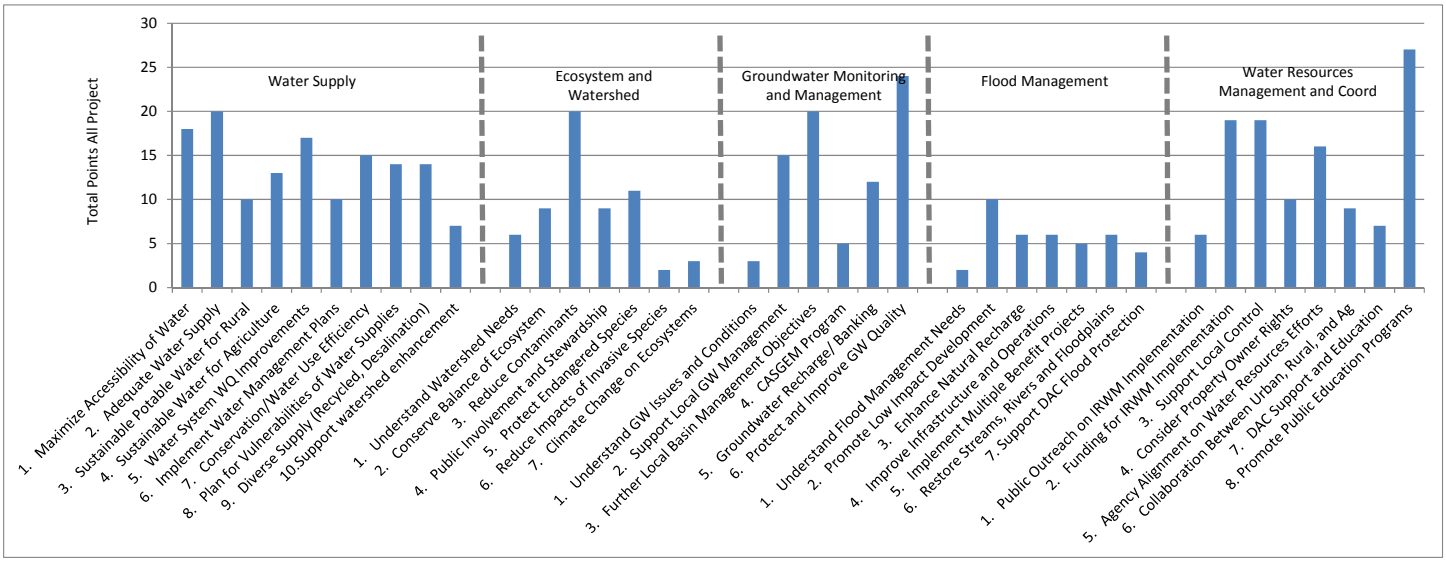
Score

1 – Project partially satisfies the Objective's intent but is not focused on achieving the Objectives intended outcome.

2 – Project is not directly aimed to satisfy the Objective's intended outcome, but Objective benefits can be measured, either qualitatively or quantitatively as part of implementation.

3 – Project is directly aimed to meet the Objective's intended outcome and includes a monitoring program for qualitative or quantitative measurement the Objectives physical benefits.

The figure below illustrates how the collective Project Short List's Project Elements meet IRWM Plan Objectives. To some extent, this chosen suite of IRWM Projects addresses all IRWM Plan objectives. The information gathered from this exercise is further used in associating the Project Elements (i.e., derived from WMS and RMS), as described in the individual in the Project Elements section in the PWP. From the figure, the Water Supply Goal shows to have the highest number of project benefits, and the Flood Management Goal the lowest number of benefits. Overall, the level of uniformity provides a high level of confidence in meeting each of the IRWM Plan's Objectives.



[5]All information contained within the PWP is derived from the Long Form and Objectives Worksheet; however, in cases where a difference is noted, the PWP takes precedence over both documents.

A Briefing Report on the San Luis Obispo Integrated Regional Water Management (IRWM) Plan Project List Update & Project Highlights

PURPOSE

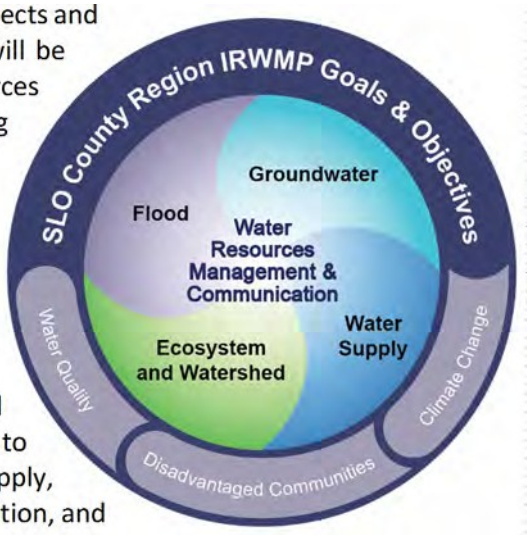
The purpose of this briefing report is to:

- Report on status of 2007 Integrated Regional Water Management (IRWM) Plan project list and/or seek input on each project's status and brief description
- Inform the region's stakeholders and project sponsors of the project selection results, including the results of the October 2013 RWMG Working Group integration workshop
- Solicit stakeholder and project sponsor comments regarding the content for either the final full and/or short project lists
- Solicit comments providing additional specificity and technical accuracy to the project descriptions and their impacts and benefits. *Note: Project Sponsors are currently reviewing a detailed report of the Project Short List for technical accuracy.*
- Provide a brief summary of how the final project short list (and its project "elements") help meet the Department of Water Resources (DWR) IRWM Guidelines

DWR has set a rigorous deadline for 2013 IRWM Plan completion. Thus our efforts are on a tight schedule, requiring comments on this report by **no later than 5:00 PM, November 26, 2013**. Please send comments to the PMT: Carolyn Berg (cberg@co.slo.ca.us) and Jon Goetz (jgoetz@geiconsultants.com). Within three (3) working days of receiving all comments, a brochure will be published to convey the final project list and the PMT will move forward with incorporation of the projects into the 2013 IRWM Plan sections.

INTRODUCTION

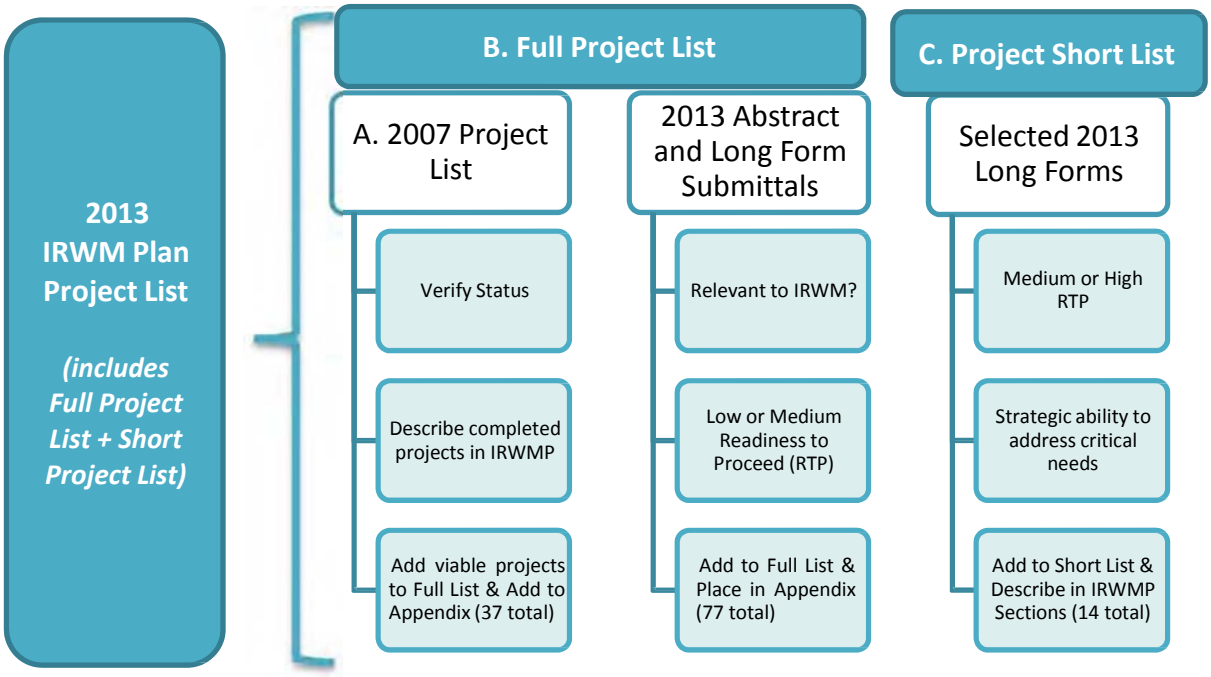
The San Luis Obispo County (SLO Co) IRWM Plan establishes goals related to water resources planning. The region's participants' and stakeholders' then implement projects and programs to achieve those goals. The IRWM Plan documents both completed and planned projects and programs, how those address goals, and specifically how each will be implemented. The IRWM Plan also maintains a list of water resources project/ planning concepts for stakeholders to consider over long term plan implementation.



SLO Co stakeholders have been actively engaged in the IRWM Plan update's project solicitation and review. From June to November 2013, the Project Management Team (PMT), under the direction of the Regional Water Management Group (RWMG), solicited water resources concepts and projects/programs from stakeholders. Agencies, organizations, and individual stakeholders submitted projects that would add value to SLO Co's integrated management of water resources: water supply, groundwater management, flood management, ecosystem restoration, and

general water resources management. As a result of this effort, 91 project[1] abstracts were submitted for PMT review.

The PMT reviewed and initially ranked these in accordance with the RWMG-approved project review guidelines (see IRWM website).[2] Some submittals were either not IRWM-related or were integrated into another project submittal. Of the 91 submittals, 77 were added to the Full Project List - 50 of those were classified as concepts[3], and 27 were classified as projects/programs. These projects have been added to the IRWM Plan Full Project List (see Section B), which also incorporates 37 concepts, programs and projects from the 2007 IRWM Plan.



These projects and the level of incorporation into the IRWM Plan are explained briefly below. This overview paper briefly describes the following:

A. 2007 IRWM Plan Project List
B. 2013 IRWM Plan Full Project List
C. 2013 IRWM Plan Short Project List
D. Next Steps
Attachment 1: Map of 2013 IRWM Plan Short Project List Locations
Attachment 2: 2013 IRWM Plan Short Project List: Summary of Project Elements

[1] Use of the term "project" in this report implies all three categories unless specifically called out as a project or program.

[2] <http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/IRWM%20Plan%20Update%202014/>

[3] Concept refers to projects in the preliminary or planning stages. Projects/ programs have progressed beyond the preliminary planning stages.

A. 2007 IRWM PLAN PROJECT LIST

The 2007 IRWM Plan and related solicitations led to a list of concepts, projects and programs that aimed at addressing critical water resources needs. Over the past six years, some projects have been implemented, while others have remained as concepts or simply fell off of agencies' list. Based on a status review of each project, the projects' merits in meeting the updated Goals and Objectives, and the project sponsor's interest in pursuing the project, projects are being incorporated into the new project list. The intent is that projects remain on the IRWM Plan project list until they are built or an alternative project is submitted to fulfill the same, or similar, objectives.

The 2007 IRWM Plan project list (below) provides the full past project list and the current status of each. Certain projects have been completed or replaced by alternative solutions or change in water resources management priorities. Of these, 37 of the remaining projects have been added to the Full Project List (see Section B).

Definitions of the different status types are as follows:

Completed – Project has been completed or implemented.

Phased/ Ongoing – Generally refers to phased projects already underway and/or long term programs underway.

Full Project List – Project sponsor has submitted an updated project abstract for the 2013 IRWM Plan, or PMT judged the project and status as being viable for potential implementation.

2013 IRWM Project List – Project is included in the 2013 IRWM Plan Project List for incorporation into the plan sections.

Removed – Project has been removed from the IRWM Project list.

2007 IRWM Plan Project List and Status

Project Category and Title	2013 Project Status	Project Summary Statement
ECOSYSTEM RESTORATION		
Waterways Vegetation Management Program	Ongoing	Provides riparian vegetation, bank stabilization, and stream shading benefiting ecosystem restoration, water quality, flood protection, and aesthetics
Mined Lands Remediation Program	Ongoing	Supports Superfund National Priority Listing for and remediation of inactive/abandoned mining lands that adversely impact public health, water quality, and wildlife habitat.
Invasive Species Program	Ongoing	Provides opportunities for ecosystem preservation, public stewardship, natural resource conservation and integration into drainage improvement projects through utilization of native, drought tolerant plants and public outreach
ENVIRONMENTAL / HABITAT PROTECTION AND IMPROVEMENT		
Steelhead 4(d) Program	Ongoing	Develops and implements a Steelhead 4(d) program consistent with NMFS standards to improve water quality and fish and wildlife habitat.
Arroyo Grande Watershed HCP	Full Project List	Optimizes Lopez Lake Reservoir operations to balance retention of water for supply, release of water for ecosystem preservation, and riparian use.
Morro Bay Estuary Comprehensive Conservation and Management Plan	Completed (2013)	Implementation of these elements of the CCMP will protect, restore, and enhance the diverse habitats found in the estuary watershed and bay; promotes public awareness and involvement in estuarine management issues.
Attiyeh Ranch Conservation Easement Project	2013 IRWM Project	Acquire an 8,000+ acre conservation easement including 6 miles of the Nacimiento River and tributaries upstream of the lake; eliminates the development, subdivision potential, and land use intensification parcels.

Project Category and Title	2013 Project Status	Project Summary Statement
WATER SUPPLY RELIABILITY		
Nacimiento Water Project	Completed (2010)	45-mile long pipeline, 3 storage tanks, pump stations, and appurtenant facilities to convey raw water from Lake Nacimiento south to the communities of Paso Robles, Templeton, Atascadero, San Luis Obispo and Cayucos.
San Miguel CSD Water System Improvements	2013 IRWM Project	Provides a new welded steel water storage tank, new/ upgraded water transmission main and distribution mains to improve fire flow and service pressures and deliver drinking water meeting water quality standards
San Simeon CSD Water System Improvements	Full Project List	Replaces distribution piping and upsizes existing reservoir to provide adequate service pressures and fire protection under future conditions while increasing drinking water reliability and meeting water quality standards.
Lopez Water Treatment Plant Upgrade	Completed (2008)	Provides potable water supplies from the Lopez Lake reservoir to the communities of Arroyo Grande, Pismo Beach, Grover Beach, Oceano and the Avila vicinity via the Lopez Water Treatment Plant
Templeton CSD Water System Improvements	2013 IRWM Project	Installs and equips a new water supply well that draws from the Salinas River sub-flow and transmission piping under the railroad right of way for conveyance of water to the community distribution system
Cambria CSD Water System Improvements	Full Project List	Modifies their well system to mitigate contamination in their groundwater supply and meet drinking water standards, and upgrading their piping and storage facilities improve the reliability of their water supply to customers
County Service Area 23 (CSA 23) State Water Project Tie-In (Santa Margarita)	Full Project List	Construction of a State Water Pipeline (SWP) turnout and the approximately 65 feet of pipeline to the community of Santa Margarita. Provide a physical connection to CSA 23 for use during a drought or other water emergency.
Interlake Tunnel Project	Full Project List	Build tunnel between Lakes Nacimiento and San Antonio to allow the capture of watershed runoff (avoids release of thousands of AF of water released for flood control). Provides strategic release for downstream drinking/ groundwater recharge, seawater intrusion abatement, etc.
Design for the Installation of an Inflatable Rubber Dam Spillway Gate at Lopez Dam	Full Project List	Design and construction of an inflatable rubber dam spillway gate or a permanent spillway raise at the Lopez dam to raise the height of the dam, expand storage capacity and increase the safe yield of the Lopez Reservoir.
Heritage Ranch Emergency/Drought Water Supply Project	Removed; Replaced by 2013 submittal	Provide an emergency turnout from the Nacimiento pipeline which allows HRCSD to receive raw lake water for its water treatment plant, during extreme drought conditions when the Nacimiento Lake level is at dead pool elevation.
FLOOD MANAGEMENT		
Flood Control Zone 1/1A Waterway Management Program	Ongoing	Partially funded by Prop 84 Implementation grant. Increase the capacity of the leveed lower three miles of Arroyo Grande Creek while enhancing water quality and sensitive species habitat. Actions include raising levees, managing in-channel vegetation and reducing/managing sediment deposition.
Flood Control Zone 9 Waterway Management Program	Complete (2003)	Conduct an evaluation of the Edna Valley Groundwater Basin in order to establish its condition in terms of safe yield, hydrogeologic characteristics, overlying use, water quality and projected future use.
Federal Flood Insurance Program Compliance Study	Full Project List	Conduct a study to review how the region conforms to the Federal National Flood Insurance Program – determine the root cause of flooding problems, develop requirements for adequate creek setbacks, etc.
Flood Management Plan	Completed (2008)	Developed as a guide to implementing flood control projects; identify significant constraints affecting the ability to implement flood control projects and strategies to address the challenges.
Oceano Drainage Improvement Project – Hwy 1 & 13th Street	2013 IRWM Project	Construction of storm drain pipe, to convey drainage from the intersection of Highway 1 and 13th Street, and an outfall pond (sedimentation basin). Collects storm flows and allow debris/sediments settlement.
GROUNDWATER MANAGEMENT		
Nipomo CSD Salt Management Program	Full Project List	SNMP including strategies for managing water supplies to reduce salt input and identifies sources of salt in their wastewater collection system while implementing a pre-treatment program for non-residential dischargers.

Project Category and Title	2013 Project Status	Project Summary Statement
Los Osos Water System Improvements	2013 IRWM Project	Implements the following water system improvement projects, as identified in their Groundwater Management Plan and Water System Master Plan, to manage their groundwater supply and increase supply reliability and quality
Chorro and Morro Groundwater Basin Management Plans	Ongoing	Develops a resource and groundwater management plan for the Chorro and Morro Groundwater basins, including development of strategies to improve the watershed flow quantity and quality, and stream flows and underflows.
Edna Valley Groundwater Basin Study	Full Project List	Conducts an evaluation of the Edna Valley Groundwater Basin to establish its condition in terms of safe yield, hydrogeologic characteristics, overlying use, water quality and projected future use.
Groundwater Management Ordinance Study	Removed	Evaluates the feasibility of implementing a groundwater management ordinance by exploring terms of existing ordinances in other regions, local adjudication requirements and groundwater management plans or efforts, etc.
Development of a Groundwater Model and Activities within Santa Maria Valley Groundwater Basin	Phased; Characterization Study Underway (2013/14)	Study underway to conduct critical groundwater basin characterization activities in the Santa Maria Groundwater Basin (SMGB) to support development of a groundwater model and SNMP.
Paso Robles Groundwater Basin Model Update and Analysis of Potential Solutions	Completed (2013/14)	The District, in collaboration with the Paso Robles Groundwater Basin Steering Committee, will lead the effort to update the Paso Robles Groundwater Basin model (based on 1981 – 1997 data) to include data through 2011.
Paso Robles Groundwater Basin Salt and Nutrient Management Plan	Completed (2013/14)	Develop a complete SNMP for the Paso Robles Groundwater Basin to serve as model for the SLO Region and develop salt and nutrient management planning recommendations based on lessons learned and feedback from the RWQCB.
Development of Basic Salt & Nutrient Management Plans	Phased; Prioritization of basins study underway (2013/14)	Organized management of basins varies widely and there is a general lack of awareness of the RWQCB Recycled Water Policy (RWP). Identify the basin study areas where SNMPs are needed in the region, relevant stakeholders, etc
Upgrade of Water and Wastewater Systems, Operations, and Maintenance	Removed, Incorporated in other planning studies	Community-specific. Planning/ upgrade of systems, operations, & maintenance to decrease pumping of groundwater and establish a sustainable water system/portfolio. Elements covered by Groundwater Management Plan efforts.
Pilot Project Impact of Santa Margarita Lake Discharges on Groundwater Basin	Removed; Incorporated into other Project List submittals	NEED DESCRIPTION
RECREATION AND PUBLIC ACCESS		
Morro Bay Harborwalk	Completed (2010)	Constructs multimodal transportation improvements including enhancement and rehabilitation of 5 acres of coastal dunes, non-native species abatement, native restoration and storm water management.
STORMWATER CAPTURE AND MANAGEMENT		
Cambria Flood Control Project	Completed (2011)	Constructs a pressure storm drain system and pump station with an overflow bypass structure to alleviate flooding in Cambria, includes Santa Rosa Creek ecosystem enhancement and improved stormwater quality.
San Miguel Flood Control Project	Full Project List	Two phase implementation (by downstream and upstream) to collect and convey Salinas River 5unoff, includes a system of curbs, gutters, drop-inlets, constructed ditches, and underground storm drainage pipes.
Los Osos Community Stormwater Master Plan	Ongoing	Community-specific; anticipated to be done in conjunction with LOWWTP; there may be elements covered by consolidated watershed planning component.
WATER CONSERVATION		
Conservation and Open Space Element	Completed (2010)	Develop a comprehensive conservation element covering agricultural resources, air quality, biological resources, cultural resources, energy resources, mineral resources, open space resources, soils, visual resources and water resources.
Water Conservation and Erosion Control Education for SLO Co Vineyard Owners	Removed; Incorporated into other Project List submittals	NEED DESCRIPTION. Considered a project/design application. Suggest holding for implementation project solicitation process.

Project Category and Title	2013 Project Status	Project Summary Statement
WATER QUALITY PROTECTION AND IMPROVEMENT		
Atascadero Wastewater System Upgrade	Completed (YEAR)	Upgrades their wastewater treatment plant to ensure compliance with waste discharge requirements and construct new gravity pipeline to to improve water quality of water discharged back into Atascadero sub-basin
Avila Beach Wastewater System Upgrade	Unknown	Updates their wastewater treatment plant to ensure compliance with waste discharge requirements; improves the quality of the water before it is discharged into San Luis Creek and the ocean
California Men's Colony Wastewater System Upgrade	Completed (YEAR)	Upgrades the wastewater treatment plant to comply with waste discharge requirements and correct inflow/ infiltration problems that lead to treatment plant overflows. Enhance creek ecosystem and protect groundwater quality.
San Miguelito Wastewater System Upgrade	Unknown	Upgrades will potentially accommodate other local entities. Ensure compliance with waste discharge requirements. Improve effluent quality thereby improving source water quality and supporting the implementation of TMDLs.
Pismo Beach Wastewater System Upgrade	Completed (2006)	Upgrades wastewater treatment plant to comply with waste discharge requirements and correct capacity problems that lead to treatment plant overflows. Protect environment, support TMDL and stormwater programs, etc
Copper Piping Impact Study	Removed	Reviews impacts of copper piping in water distribution systems to implement policy to prevent negative impacts on drinking water supply and impacts on source water and the environment resulting from poor effluent quality.
Landfill Regulation Compliance Study	Removed	Reviews impacts of landfill operations on source water quality and ecosystems by documenting how they address TMDL and stormwater programs in complying with waste discharge requirements.
WATER RECYCLING		
San Simeon Wastewater Treatment Facility Upgrade	Completed (YEAR)	Upgrades existing wastewater treatment plant to from secondary to tertiary treatment (approved SEP) and will improve effluent quality. It will formally permit riprap armament and may include installation of seawall.
Morro Bay Wastewater Treatment Facility Upgrade	Completed (YEAR)	Upgrades to tertiary treatment; will provide increased treatment efficiency along with rehabilitation and modernization of the existing plant infrastructure as recommended by the RWQCB
Southland Wastewater Treatment Facility Upgrade	Completed (YEAR)	Retrofits an existing aerated lagoon wastewater treatment facility with wave oxidation technology to reduce nitrate discharge, installing headworks to screen out grit, and adds tertiary treatment to allow for recycled water use.
San Luis Obispo Reclamation Facility Upgrade	Completed (YEAR); Expanded distribution included as 2013 IRWM Project	Upgrading and adding various processes to increase capacity and to improve reliability and operational efficiency of the City's reclamation facility. Phase 2: add processes and equipment to remove nitrates from the treatment plant effluent and improve water quality.
South San Luis Obispo County Sanitation District Facility Upgrade	Covered by Regional RWSP (2013/14)	Upgrading its regional wastewater treatment plant to both meet waste and discharge requirements and allow for recycled water use in projects such a ecosystem enhancement and groundwater management. This meets implementation of inter-agency projects objectives.
Paso Robles Reclamation and Recharge Program	Ongoing; Construction underway	The wastewater treatment plant will be upgraded to tertiary treatment so the effluent can potentially be used for recharge, banking, irrigation, and/or ecosystem enhancement applications. Allow greater supply flexibility.
Recycled Water Master Plan Update	Full Project List	The City of SLO Recycled Water Master Plan Update will guide the expansion of the recycled water distribution system to serve users and maximize the use of available recycled water supply, thereby offsetting the use of potable water.
CSA 16 (Shandon) Water Reliability Project	Full Project List	Construct turnout facilities to connect the Coastal Branch of the State Water Project to the CSA 16 (Shandon) water distribution system.
Nipomo Area Water Reuse Plan	Unknown	Considered planning application; considered community-specific (Nipomo Mesa area of Santa Maria basin), but would work well in a collaborative recycled water planning proposal with a regional-scope.

Project Category and Title	2013 Project Status	Project Summary Statement
Supplemental Recycled Water Feasibility Study	Covered by Regional RWSP (2013/14)	The following agencies are investigating the feasibility of implementing recycled water programs within their service areas: Templeton Community Services District (TCSD), City of Morro Bay, City of Pismo Beach, South San Luis Obispo County Sanitation District (SSLOCSD), and Nipomo Community Services District (NCSD) via this Regional Recycled Water Strategic Plan (RWSP).
Preparation of a Recycled Water System Facilities Plan for the City of Pismo Beach	Covered by Regional RWSP (2013/14)	Covered by Supplemental RWSP study underway.
City of Morro Bay and Cayucos Community Services District (MBCSD) Recycled Water Master Plan.	Covered by Regional RWSP (2013/14)	Covered by Supplemental RWSP study underway.
San Simeon Small Scale Recycled Water Project	Full Project List	Title 22 Water available for distribution to offset potable water used for irrigation and hotel laundry use.
WETLANDS ENHANCEMENT AND CREATION		
Wetland and Vernal Pool Mapping	Ongoing; Limited data available (2007)	Map the region's wetlands/vernal pools to facilitate integration of enhancement measures into development and ecosystem restoration and mitigation projects. Some herbaceous wetland and critical habitat delineations mapped.
CONJUNCTIVE USE		
Paso Robles Groundwater Basin Water Banking Feasibility Study	Completed (2008)	Explored the feasibility of banking water in the Paso Robles Groundwater Basin for the benefit of County residents. This was considered a high-priority study with much potential because the Basin is the largest in the County and the Coastal Branch of the State Water Project (SWP) enters the County adjacent to the Basin.
Groundwater Recharge Optimization Program	Completed (2012); within Paso Robles Groundwater Management Plan	Compiles info on the optimal locations for recharge to improve regional water supply reliability and quality by using the other efforts/programs underway such as land use and watershed planning efforts, flood and storm water management; water banking feasibility studies; etc
DESALINATION		
Morro Bay Desalination Facility Upgrade	Completed (YEAR)	Installs an energy recovery system in its existing desalination facility to reduce electrical consumption; increases production capacity via reclaiming facility effluent; reduces dependence on State Water and local groundwater
Cambria Desalination Facility Project	Unknown	Constructs a seawater desalination plant that includes a subsurface seawater intake, pumping and pipeline facilities to transport seawater to the plant, a reverse osmosis (RO) treatment process, a groundwater blending system, etc
Desalination Study	Full Project List	Evaluates potential for desalination applications in the region by reviewing existing desalination facilities and existing study/project information to document opportunities for locations of new facilities.
LAND USE PLANNING		
Low Impact Development Program	Completed (YEAR)	Adopts LID requirements for new development and redevelopment that include wetland and riparian corridor protection and restoration, open spaces, stormwater retention, and utilization of smart growth principles.
Agriculture Element	Completed (2010)	Identifies areas of the region with productive farms, ranches and soils, and establishes goals, policies and implementation measures that will enable their long-term stability and productivity; identifies open space to protect; etc
NPS POLLUTION CONTROL		
Rural Road Erosion Program	Removed	Implements a program to monitor and reduce rural road erosion in order to protect source water quality; can be used to support implementation of TMDL and stormwater programs; will assist with locating or drainage problems
Morro Bay NPDES Illicit Discharge Detection and Elimination Ordinance	Unknown	Seeks to adopt an Illicit Discharge Detection and Elimination (IDDE) Ordinance, a requirement of the City's Stormwater Management Plan, to prevent illicit discharges to sensitive bay, creek and ocean habitats

Project Category and Title	2013 Project Status	Project Summary Statement
Lake Nacimiento Watershed Mercury Sediment Reduction Project	Completed (YEAR)	Includes a comprehensive site assessment, construction of three NPS MMP demonstration project sites designed to eliminate mercury sediment and acid rock drainage inputs and MMP effectiveness monitoring
WATERSHED PLANNING		
Data Enhancement Plan	Completed (2008)	Regional water monitoring program designed to provide data for planning, design, and operational purposes; data frequently interpreted to identify monitoring sites that might be dropped from the network or sampled less frequently, identify spatial gaps or the need for more frequent data collection.
Master Water Report	Completed (2012)	Develop region-wide study analyzing supply and demand by evaluating potential for new supplies; identify deficiencies and recommend projects, policies and programs to address those deficiencies.
Regional Permitting Plan	Completed (2008)	Develops regional permitting plan aimed at aligning Federal, State and local goals and objectives; establishes an orderly set of uniform conditions for projects to reduce processing time and increase consistency and effectiveness.
On-Farm Water Quality Enhancement and Conservation Plan for Coastal Watersheds	Full Project List	Prioritize planning and implementation projects on agricultural lands that address non-point source pollutants and the loss of riparian corridors. Integrate one or more agricultural BMPs such as irrigation efficiency
Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek	Full Project List	Design and implement floodplain projects in order to reduce downstream flooding and sediment loads, encourage groundwater infiltration, and expand riparian/ floodplain habitat.
Sustain SLO North: A Water Conservation Stewardship Plan for North County, San Luis Obispo	Full Project List	Considered planning application; considered regional (USLTRCD boundaries); would work well in a collaborative watershed planning proposal with a broader regional-scope.
Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed	Full Project List	NEED DESCRIPTION; Would work well in a collaborative watershed planning proposal with a broader regional-scope. Potential for collaboration with Cachuma RCD.
County-wide Fish Passage Barrier Evaluation	Watershed Management Planning Study (2013/14)	NEED DESCRIPTION; considered regional (each watershed in Region); would work well in a collaborative watershed planning proposal with a broader regional-scope; financial capacity unknown.
County-wide Approach to Understanding Instream Flow Needs	Completed (2013/14)	Help the SLO Region to better understand the instream flow needs of key species and environmental factors; improve the stakeholders' ability to better manage local water resources in a way that considers environmental stewardship.
WATER AND WASTEWATER TREATMENT		
Atascadero Lake Treatment System	Ongoing	Installs a treatment system for urban lake; improve water quality; provide opportunities for implementing stormwater and TMDL programs
Paso Robles Water Treatment Plant Project	2013 IRWM Project	Constructs a treatment plant to reliably deliver water that meets all drinking water standards to its customers and facilitates conjunctive use between Lake Nacimiento and groundwater supplies
San Miguel CSD Wastewater Treatment Expansion	Completed (2009)	Expand existing wastewater treatment plant capacity (influent lift station, four aeration ponds, three effluent percolation ponds, etc to comply with waste discharge requirements and ensure adequate capacity during storm events
Templeton CSD Wastewater System Expansion	2013 IRWM Project	Expands existing treatment plant (including AIPS ponds) to accommodate buildout flows, ensure waste discharge and stormwater programs compliance; adding additional storage ponds for wet weather storage.
Los Osos Community Wastewater Project	Ongoing; Construction underway	Partially funded by Prop 84 Implementation grant; Includes gravity wastewater collection system and tertiary treatment facility intended for water reuse in the Los Osos Groundwater Basin and habitat site restoration, and roadway improvement.
Lopez Water Treatment Plant Membrane Rack Addition	2013 IRWM Project	Involves the installation of additional membrane filter modules in the existing five membrane filtration racks and the construction of a new sixth membrane filtration rack to increase its filtration capacity to provide greater reliability.

Project Category and Title	2013 Project Status	Project Summary Statement
Cambria Pump Station	Full Project List	Construct a new storm water pump station and outlet structure to pump floodwaters from the lowest part of West Village directly into Santa Rosa Creek, significantly reduce flooding in the sump area of the West Village of Cambria.
Interceptor Sewer System Replacement, Oak Shores, CSA 7A	Full Project List	Construct new gravity sewerlines, 8 lift stations, manholes, pipe bridges, and pump systems to replace the Eastside and Westside Interceptor Sewer System.
Oceano Community Services District Water System Improvements	Full Project List	Provide various water system improvements to the community of Oceano, to improve water supply reliability and to improve water quality.
Lopez Pipeline Improvements	Full Project List	Optimize Lopez pipeline delivery capacity, working in conjunction with project to install additional membranes at the Lopez Water Treatment Plant to increase the overall capacity of the Lopez Project and to improve the water supply reliability.
San Miguel Community Services District Water System Improvements	2013 IRWM Project	Provide various water system improvements to the community of San Miguel, to improve water supply reliability and to improve water quality.
Chorro Valley Master Water and Waste Water Plan	Full Project List	NEED DESCRIPTION
WATER TRANSFERS		
Nipomo CSD Supplemental Water Project	Phased; Phase 1 under construction (2013)	3 phased project constructs treatment facilities and pipeline to ultimately transfer 3,000 acre feet of supplemental water per year from Santa Maria to Nipomo. Phases will increase water supply to 645 AFY, 1,600 AFY, and 3,000 AFY, respectively.

B. 2013 IRWM PLAN FULL PROJECT LIST

The table below includes all concepts and project/programs meeting the minimum requirements of an IRWM project. This Full Project List includes 37 relevant 2007 IRWM projects as well as 77 relevant and integrated 2013 project submittals. The list will be an appendix to the IRWM Plan, and will be updated on an as-needed basis (at a maximum of every two years). All projects included on this list are considered to be a part of the IRWM Plan and will be considered for future funding and implementation opportunities. The table includes the project title, sponsor, project category (e.g., concept, project or program) and primary IRWM benefit category. The sort order is first by Sub-Region or Multi-Regional category, then alphabetically.

Many of these project submittals contained opportunities for integration or consolidation. On October 16, 2013, the RWMG Working Group, Project Sponsors and Interested Stakeholders met to discuss the overall project solicitation process and results. The discussion resulted in identifying integration opportunities and developing an IRWM Plan project list. Following the meeting, the PMT combined this new integrated list with the 2007 IRWM Plan project list, as shown below.

If abstracts were integrated into one project, it will note which project submittals were combined under the column titled “project”. For example, the Central Coast Vineyard Team and Upper Salinas Las Tablas Resource Conservation District integrated two project submittals. Their combined project title now reads: “***Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Ag BMPs*** *(integrated 2 submittals: Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin; North County Precision Irrigation Research Program_ Precision Agriculture)”.*

IRWM Plan Update Full Project List (Grouped by Sub-Region)

(Titles followed by an asterisk (*) are Short List Projects)

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	**Conservation Planning for Coastal Watersheds**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Concept	Ecosystem
2013	**Agricultural Water Management and Conservation Program**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Concept	Water Management
2013	**Closing Priority Conservation Data Gaps**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Concept	Ecosystem
2013	**County-wide Watershed and Creek Signage**	Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)	**Multi-Regional**	Project	Ecosystem/Water Management
2013	**Countywide Watershed Planning Phase II**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Concept	Ecosystem
2013	**Desalination Study**	Various	**Multi-Regional**	Concept	Water Supply
2007	**Development of Basic Salt & Nutrient Management Plans**	Various	**Multi-Regional**	Concept	Groundwater
2013	**Feasibility Study for Recycled Water for Agricultural Use**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Concept	Water Supply
2007	**Federal Flood Insurance Program Compliance Study**	San Luis Obispo County Flood Control and Water Conservation District	**Multi-Regional**	Concept	Flood
2007	**Invasive Species Program**	County of San Luis Obispo	**Multi-Regional**	Program	Ecosystem
2013	**Livestock & Land Program***	Coastal San Luis Resource Conservation District (CSLRCD) and Upper Salinas Las Tablas Resource Conservation District (US-LTRCD)	**Multi-Regional**	Program	Ecosystem
2013	**LID Pilot Program***	US-LTRCD	**Multi-Regional**	Program	Flood Management
2007	**Mined Lands Remediation Program**	San Luis Obispo County Flood Control and Water Conservation District	**Multi-Regional**	Program	Ecosystem
2013	**Raising Santa Margarita Dam**	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)	**Multi-Regional**	Concept	Water Supply/Groundwater
2013	**Rancher 2 Rancher Program**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Concept	Water Management
2013	**Regional Implementation of Groundwater Management Activities**	Various (depends on basin)	**Multi-Regional**	Concept	Groundwater
2013	**SLO Communities Water Enhancement**	Central Coast Salmon Enhancement	**Multi-Regional**	Concept	Water Supply
2013	**Stormwater Rewards Rebate Program**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Concept	Flood Management
2013	**Urban Landscape Water Management and Conservation Program**	Coastal San Luis Resource Conservation District	**Multi-Regional**	Project	Water Supply
2013	**Water Conservation Corps**	California Conservation Corps (CCC) – San Luis Obispo Center _ (Other Partners TBD)	**Multi-Regional**	Concept	Water Management
2007	**Waterways Vegetation Management Program**	San Luis Obispo County Flood Control and Water Conservation District	**Multi-Regional**	Program	Ecosystem
2007	**Wetland and Vernal Pool Mapping**	County of San Luis Obispo	**Multi-Regional**	Concept	Ecosystem
2013	**8th Street Upper Aquifer Well and Nitrate Removal Facility***	Los Osos Community Services District	North Coast	Project	Water Supply/Groundwater
2007	**Cambria CSD Water System Improvements**	Cambria CSD	North Coast	Project	Water Supply
2007	**Cambria Desalination Facility Project**	Cambria CSD	North Coast	Project	Water Supply
2007	**Cambria Pump Station**	San Luis Obispo County Flood Control and Water Conservation District	North Coast	Project	Water Supply
2007	**Chorro and Morro Groundwater Basin Management Plans**	Morro Bay National Estuary Program	North Coast	Concept	Groundwater
2013	**Chorro Creek Ecological Reserve Floodplain Restoration Project**	Morro Bay National Estuary Program	North Coast	Project	Ecosystem
2007	**Chorro Valley Master Water and Waste Water Plan**	City of Morro Bay	North Coast	Concept	Water Supply
2013	**Cambria Pump Station**	County of San Luis Obispo, Department of Public Works	North Coast	Project	Groundwater/Flood Management
2013	**Conservation Planning for North Coast Landowners**	US-LTRCD	North Coast	Project	Water Supply
2013	**County Service Area 10 – Clearwell Tank Roof Replacement**	San Luis Obispo County Flood Control & Water Conservation District	North Coast	Concept	Water Management
2013	**County Service Area 10A Water System Improvements** (Integrates 2 submittals: New 200k Gallon Storage Tank; and Storage Tank Roof Replacement)	San Luis Obispo County Flood Control & Water Conservation District	North Coast	Concept	Water Supply
2007	**Los Osos Community Stormwater Master Plan**	Los Osos CSD	North Coast	Concept	Flood

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	**Los Osos Landfill Remediation – Pump and Treat**	County of San Luis Obispo	North Coast	Concept	Groundwater
2007	**Los Osos Water System Improvements**	Los Osos CSD	North Coast	Project	Water Supply
2013	**Los Padres CCC Center – Stormwater LID Treatment Project***	Morro Bay National Estuary Program	North Coast	Project	Flood Management
2013	**Morro Bay_Cayucos Sanitation District Salt and Nutrient Management Plan**	City of Morro Bay	North Coast	Project	Groundwater
2007	**Morro Bay NPDES Illicit Discharge Detection and Elimination Ordinance**	City of Morro Bay	North Coast	Concept	Water Supply
2007	**Morro Bay Wastewater Treatment Facility Upgrade**	City of Morro Bay	North Coast	Project	Water Supply
2013	**North Coast Watershed Plans**	US-LT RCD	North Coast	Project	Ecosystem
2013	**Rehabilitation_Installation of Retention Ponds in North Coast (store & release)**	US-LTRCD	North Coast	Concept	Groundwater
2013	**S&T Mutual Water Co_Golden State Water Co Intertie**	S&T Mutual Water Company	North Coast	Concept	Water Supply
2007	**San Simeon CSD Water System Improvements**	San Simeon CSD	North Coast	Project	Water Supply
2007	**San Simeon Small Scale Recycled Water Project**	San Simeon CSD	North Coast	Project	Water Supply
2007	**San Simeon Wastewater Treatment Facility Upgrade**	San Simeon CSD	North Coast	Project	Water Supply
2013	**SLO County Drought Protection & Climate Change Preparedness Pilot Project**	GREENSPACE – The Cambria Land Trust	North Coast	Concept	Water Management
2013	**Streambank Stabilization & Restoration in Santa Rosa Creek**	US-LTRCD	North Coast	Project	Ecosystem
2013	**Water Conservation Partnerships in Chorro Valley**	Morro Bay National Estuary Program	North Coast	Concept	Ecosystem
2013	**Attiyeh Ranch Conservation Easement***	Land Conservancy	North County	Project	Ecosystem
2013	**21st Street Reservoir Reconstruction**	City of Paso Robles	North County	Project	Ecosystem
2013	**Atascadero Creek Watershed Management Plan**	City of Atascadero	North County	Concept	Flood Management
2007	**Atascadero Lake Treatment System**	City of Atascadero	North County	Project	Ecosystem
2007	**Atascadero Wastewater System Upgrade**	City of Atascadero	North County	Project	Water Supply
2007	**Attiyeh Ranch Conservation Easement Project**	Land Conservancy of SLO	North County	Project	Ecosystem
2013	**City of Paso Robles Lake Nacimiento Water Treatment Plant Construction***	City of Paso Robles	North County	Concept	Water Supply
2013	**Community Based Social Marketing – Paso Groundwater Basin Community (water quality & quantity)***	US-LTRCD	North County	Project	Water Management
2013	**County Service Area 23 (CSA 23) Water Reliability Program**	County of San Luis Obispo – Public Works Dept	North County	Concept	Water Supply
2013	**County Service Area 7A – Oak Shores – Interception Sewer System Replacement**	County of San Luis Obispo	North County	Concept	Water Supply
2013	**Creston State Water Project Turnout**	Requires formation of Water Purveying Entity	North County	Concept	Water Supply
2013	**CSA 16 (Shandon) Water System Improvements (integrate 4 submittals: Waterline –** Replace Centre Street; Waterline – Upsize 1st Street; Waterline Loop N. 2nd to N. 3rd Streets; New Storage Tank)	San Luis Obispo County Flood Control & Water Conservation District	North County	Concept	Water Supply
2013	**CSA 16 (Shandon) Water Reliability Project**	County of San Luis Obispo	North County	Concept	Water Supply
2013	**Emergency Water Turnout for Heritage Ranch CSD**	Heritage Ranch CSD	North County	Project	Water Supply
2013	**Evaluating land-surface subsidence and potential groundwater-storage losses as part of assessing proposed water banking sites in Paso Robles Groundwater Basin**	USGS	North County	Concept	Groundwater
2013	**Groundwater Monitoring Program and Modeling Program for the Paso Robles Groundwater Basin**	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)	North County	Concept	Groundwater

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	**Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Ag BMPs*** (integrated 2 submittals: Tracking and Conserving Vineyard Irrigation Water in the Paso Robles Groundwater Basin; North County Precision Irrigation Research Program_ Precision Agriculture)	Vineyard Team & US-LTRCD	North County	Project	Water Supply
2007	**Interlake Tunnel Project**	Nacimiento Regional Watershed Management Advisory Committee	North County	Project	Water Supply
2013	**Nature Center & Conservation Hub**	US-LTRCD	North County	Concept	Water Management
2013	**North County Fertilizer Regions_ Precision Agriculture***	US-LTRCD	North County	Program	Ecosystem
2013	**North County Strategic Plan**	Institute for Advanced Technology & Public Policy, Cal Poly, San Luis Obispo	North County	Concept	Groundwater
2013	**Off Stream Storage within the North County**	Paso Robles Agricultural Alliance for Groundwater Solutions (PRAAGS) (predecessor to future California Water District)	North County	Concept	Groundwater
2013	**Phase 2 – Lake Nacimiento Potable Water Treatment Plant**	City of Paso Robles	North County	Project	Groundwater
2007	**Pilot Project Impact of Santa Margarita Lake Discharges on Groundwater Basin**	Unknown	North County	Concept	Groundwater
2013	**Recycled Water Treatment and Distribution System – Phase 1**	City of Paso Robles	North County	Concept	Groundwater
2013	**Recycled Water Treatment and Distribution System – Phases 2_3**	City of Paso Robles	North County	Concept	Groundwater
2007	**San Miguel CSD Water System Improvements***	San Miguel CSD	North County	Project	Water Supply
2013	**San Miguel Flood Control Program**	San Luis Obispo County Flood Control and Water Conservation District	North County	Concept	Flood Management
2013	**Supplemental Water Supplies for Paso Robles Groundwater Basin** (integrates 5 submittals: Community Water Systems for Subdivided Regions Overlying the Paso Robles Groundwater Basin; Irrigation Distribution System at Paso Robles Airport Area; Paso Robles Groundwater Basin Restoration and Basin Recharge; Paso Robles Groundwater Basin In-Lieu Recharge Study and Preliminary Layout)	TBD	North County	Concept	Water Supply
2007	**Sustain SLO North: A Water Conservation Stewardship Plan for North County, San Luis Obispo**	US-LTRCD	North County	Concept	Water Supply
2013	**Templeton CSD East Side Force Main and Lift Station Project**	Templeton CSD	North County	Project	Water Supply/Groundwater
2007	**Templeton CSD Water System Improvements**	Templeton CSD	North County	Project	Water Supply
2013	**Toad Creek flood control, restoration and basin re-charge**	US-LTRCD	North County	Project	Flood Management
2013	**Toad Creek Waterway Management Program**	SLO County Flood Control and Water Conservation District	North County	Concept	Ecosystem/Flood Management
2013	**Upper Salinas River Basin Water Conservation/Conjunctive Use Project***	Templeton CSD	North County	Concept	Water Supply
2013	**Upper Salinas Watershed Plans**	US-LTRCD	North County	Project	Ecosystem
2013	**Vertical Well Project for HRCSD**	Heritage Ranch CSD	North County	Concept	Water Supply
2013	**Water-wise program (with target applied irrigation rates)**	US-LTRCD	North County	Project	Water Supply

Current or Prior Submittal	Projects	Sponsor	Sub-Region	Project or Concept?	Project Category
2013	**Alternatives Analysis and BMP Implementation Plan for the Oso Flaco Watershed**	Coastal San Luis Resource Conservation District	South County	Concept	Ecosystem
2013	**Arroyo Grande Creek Channel Waterway Management Program**	San Luis Obispo County Flood Control and Water Conservation District, Central Coast Salmon Enhancement	South County	Project	Flood Management
2007	**Avila Beach Wastewater System Upgrade**	Avila Beach CSD	South County	Project	Water Supply
2013	**Beach Street Alley Waterline Replacement**	Oceano Community Services District	South County	Project	Water Supply
2013	**Conjunctive Use and Groundwater Banking Evaluation**	Oceano Community Services District	South County	Concept	Groundwater
2007	**Edna Valley Groundwater Basin Study**	Various	South County	Concept	Groundwater
2007	**Flood Control Zone 1/1A Waterway Management Program**	San Luis Obispo County Flood Control & Water Conservation District	South County	Program	Flood
2013	**Flood Control Zone 3 – Lopez WTP Sludge Bed 1 & 2 Upgrades**	San Luis Obispo County Flood Control & Water Conservation District	South County	Concept	Water Supply
2013	**Floodplain and Riparian Enhancement Feasibility Plan for Arroyo Grande Creek**	Coastal San Luis Resource Conservation District	South County	Concept	Flood Management
2013	**Lopez Lake Spillway Raise Project**	Zone 3 Agencies (Cities of Arroyo Grande, Grover Beach and Pismo Beach, Oceano Community Services District and County Service Area 12)	South County	Concept	Water Supply
2013	**Lopez Pipeline Improvements**	Northern Cities Management Area (NCMA) Agencies: Oceano Community Services District (OCSD)_ City of Arroyo Grande_ City of Grover Beach_ City of Pismo Beach	South County	Concept	Water Supply
2013	**Lopez Water Project Habitat Conservation Plan**	San Luis Obispo County Flood Control and Water Conservation District	South County	Project	Ecosystem
2013	**Lopez Water Treatment Plant Membrane Rack Addition***	San Luis Obispo County Flood Control and Water Conservation District	South County	Concept	Water Supply/Groundwater
2013	**Mapping the saltwater_freshwater interface in southern San Luis Obispo and northern Santa Barbara County, California**	USGS	South County	Concept	Groundwater
2013	**Meadow Creek Restoration Plan** (integrates: Meadow Creek Flood Reduction)	Central Coast Salmon Enhancement (and Coastal San Luis RCD)	South County	Concept	Ecosystem
2013	**Mid-Higuera Bypass**	City of San Luis Obispo	South County	Project	Flood Management
2013	**Nacimiento Water Project Energy Recovery Turbine**	City of San Luis Obispo	South County	Concept	Water Management
2007	**Nipomo Area Water Reuse Plan**	Nipomo CSD	South County	Concept	Water Supply
2007	**Nipomo CSD Supplemental Water Project**	Nipomo CSD	South County	Project	Water Supply
2007	**Oceano Community Services District Water System Improvements**	Oceano CSD	South County	Project	Water Supply
2013	**Oceano Drainage Improvement Project – Hwy 1 & 13th Street***	County of San Luis Obispo, Department of Public Works	South County	Project	Flood Management
2007	**On-Farm Water Quality Enhancement and Conservation Plan for Coastal Watersheds**	CSLRCD	South County	Concept	Water Supply
2013	**Pismo Beach Recycled Water Treatment Plant***	City of Pismo Beach	South County	Project	Groundwater
2013	**Pismo Creek Watershed Program**	Central Coast Salmon Enhancement	South County	Concept	Ecosystem
2013	**Recycle Water Distribution System Expansion***	City of San Luis Obispo	South County	Project	Water Supply
2007	**Recycled Water Master Plan Update**	City of San Luis Obispo	South County	Concept	Water Supply
2013	**Regional Recycled Water System (Pismo Beach and SSLOCSD)** (integrates Pismo Beach Recycled Water System)	City of Pismo Beach	South County	Concept	Groundwater
2007	**San Miguelito Wastewater System Upgrade**	San Miguelito MWC	South County	Project	Water Supply
2013	**Santa Maria Groundwater Basin Model**	NCMA Agencies (Oceano Community Services District, Cities of Arroyo Grande, Grover Beach and Pismo Beach), Nipomo CSD	South County	Concept	Groundwater
2013	**See Canyon Watershed Management Plan**	Central Coast Salmon Enhancement	South County	Concept	Ecosystem
2007	**Southland Wastewater Treatment Facility Upgrade**	Nipomo CSD	South County	Project	Water Supply
2007	**Steelhead 4(d) Program**	Central Coast Salmon Enhancement	South County	Program	Ecosystem

D. 2013 IRWM PLAN SHORT PROJECT LIST

The Short Project List is an inventory of all projects and programs submitting a Long Form under the Phase 2 solicitation process. Concepts and/or projects that have a lower "readiness-to-proceed" are included in the Full Project List (Section B), but were not asked to submit a Long Form for consideration in the Short Project List below.

The Short Project List of projects identifies those projects/programs that are technically feasible and strategically suited to be fully described in the IRWM Plan. Projects listed in grey below submitted long forms, which will be included in the IRWM Plan update appendix; however due to reason stated in the table, that project does not have enough data or does not address enough objectives (per State Guidelines) to adequately incorporate information throughout the IRWM Plan update itself. That differentiation does not note a project as being less significant. It simply means that the project will not be incorporated into various IRWM Plan sections. All projects will still remain on the Full Project List, and are considered to be supported by this IRWM Plan.

A detailed project analysis compiled as a Project Review White Paper (PWP)[4] evaluated each project's strategic value in meeting the State Objectives and Resource Management Strategies, as well as the IRWM Plan's Water Management Strategies, and its Goals and Objectives. The PWP is a resource document developed for purposes of documenting detailed material to be used in populating the various IRWM Plan sections.

PFRNo.	Project Code	Project Title	Primary Reason for In or Out of IRWM Plan
1	**MLTP_ECO1**	Livestock & Land Program	Included for its multi-objective regional benefits and water quality enhancement while gaining private property owner volunteer participation for purposes of environmental stewardship.
	MLTP_FLD1	Water Conservation Corps	Not included due to low RTP.
	MLTP_WMT1	County-Wide Watershed Awareness Campaign	Not included due to medium RTP and lower total Objectives-based point score.
2	**MLTP_WMT2**	LID Pilot Program	Included for its public education and outreach, as well as targets private property owners to volunteer and pay for LID projects with monetary rebate incentives.
3	**NCNT_ECO1**	North County Fertilizer Regions_ Precision Agriculture	Included for its wide public educational value and regional water quality benefits through volunteer participation by private property owners with reduced fertilizer cost incentives.
4	**NCNT_ECO2**	Attiyeh Ranch Conservation Easement	Included for public and environmental stewardship values; both resulting in the protection of the watershed and endangered flora and fauna species in the region.
	NCNT_FLD1	Upper Salinas watershed plans	Not included due to medium RTP.
5	**NCNT_GWM1**	Atascadero Groundwater Basin Augmentation Expansion Project	Included because of the multi-objective elements of improving recycled wastewater for higher beneficial use as a source for groundwater recharge and potable supplies in the Salinas Underflow.

PFRNo.	Project Code	Project Title	Primary Reason for In or Out of IRWM Plan
6	**NCNT_WMT1**	Community Based Social Marketing	Included due to its low cost high education value over a broad region, enlisting support of private property owners to take ownership of their environment, and improving sustainable farming and business practices.
7	**NCNT_WMT2**	Improving On Farm Water Management Through Demonstration, Research & Outreach of Precision Agricultural Best Management Practices	The project is a teamed effort by two project sponsors. Included for its high public educational value and regional water demand reduction benefits over a critically impacted groundwater basin, and offers change in irrigation practices through volunteer participation by private property owners with reduced pumping cost incentives.
8	**NCNT_WSP1**	City of Paso Robles Lake Nacimiento Water Treatment Plant Construction	Included due to its maximizing existing supplemental water supplies in a critically impacted groundwater basin, and use as a conjunctive supply for drought protection and effects of climate change in the region.
9	**NCNT_WSP2**	San Miguel Critical Water System Improvements	Included due to the DAC need for critical water system improvements.
	NCST_ECO1	Water Conservation Partnerships in Chorro Valley	Not include due to low RTP and low total Objectives-based point score.
10	**NCST_GWM1**	8th Street Upper Aquifer Well and Nitrate Removal Facility	Included for its multi-Objective values of managing a critical groundwater basin subjected to continuous degradation of water quality from septic systems (nitrates) and sea water intrusion, and the local collaboration between the agencies and public using a vetted management plan.
11	**NCST_FLD1**	Los Padres CCC Center - Stormwater LID Treatment Project	Included for its multi-Objective benefits of environmental stewardship, LID educational opportunities, and the conversion of private lands to restore a rich ecosystem of flora and fauna.
	SCNT_FLD1	Mid-Higuera Bypass	Not included due to its medium RTP and low Objectives point score.
12	**SCNT_FLD2**	Oceano Drainage Improvement Project - Hwy 1 & 13th Street	Included due to multi-Objective elements of providing a DAC with health and safety along with water quality, groundwater recharge, and flood attenuation.
13	**SCNT_WMT1**	Lopez Water Treatment Plant Membrane Rack Addition	Included due to increased use of existing surface water supplies and reduction in groundwater use in a constrained groundwater basin shared by multiple agencies and private well owners.
	SCNT_WSP1	Lopez Lake Spillway Raise Project	Not included due to low RTP.
14	**SCNT_WSP2**	Recycle Water Distribution System Expansion	Included due to increased recycled water use in a DAC with the benefit of reducing groundwater pumping in a constrained groundwater basin.
	SCNT_WSP3	NCMA_NMMA Salt and Nutrient Management Plan (SNMP)	Not included due to medium RTP.
15	**SCNT_WSP4**	Pismo Beach Recycled Water Project	Included due to increased recycled water use through construction of a recycled water treatment plant. Recycled water will be made available in a constrained groundwater basin where imported surface water supplies are necessary. A high level of support from local stakeholders makes this a preferred project for the South County Sub-Region.

Geographic significance of project selection is considered in project selection to ensure each Sub-Region is equally represented in the IRWM Plan. The figure in **Attachment 1** identifies the approximate location of the capital projects, and programs, typically spread across large areas, are positioned at the approximate center of the benefit areas.

E. NEXT STEPS

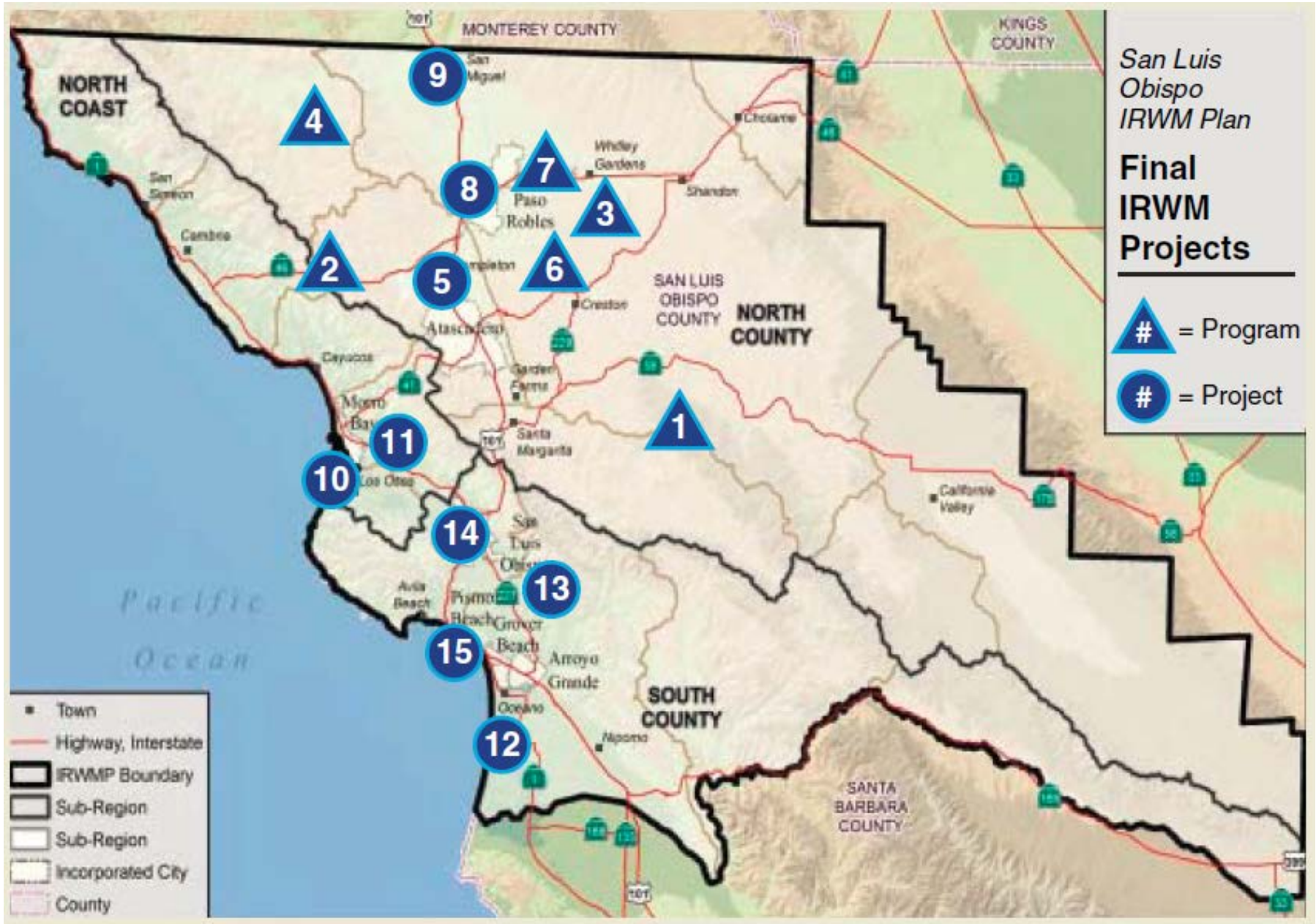
Upon receipt of all comments on November 26, 2013, the PMT will develop a Final Brochure to convey the results (and changes per RWMG review) to the RWMG. This will allow the PMT to incorporate project data into the complete Administrative Draft IRWM Plan by January/February and the Public Draft IRWM Plan by March/April. The RWMG and stakeholders can expect to receive the brochure electronically by December 4, 2013. The clear documentation of project review and selection is pivotal to meeting DWR requirements, and ensures acceptance of the IRWM Plan by the region's stakeholders upon final completion and adoption by the County Board of Supervisors and RWMG Member Agencies in June 2013.

ATTACHMENTS

1 - Map of 2013 IRWM Plan Short Project List Locations

2 - 2013 IRWM Plan Short Project List: Summary of Project Elements

ATTACHMENT 1 - Map of 2013 IRWM Plan Short Project List Locations



ATTACHMENT 2 - 2013 IRWM PLAN SHORT PROJECT LIST: SUMMARY OF PROJECT ELEMENTS

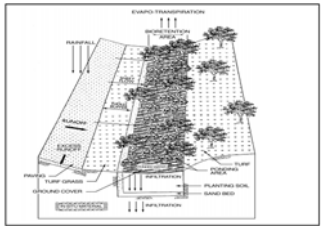
The following table of Project Technical Descriptions serves as a summary of the Project Elements, defined in the IRWM Plan as:

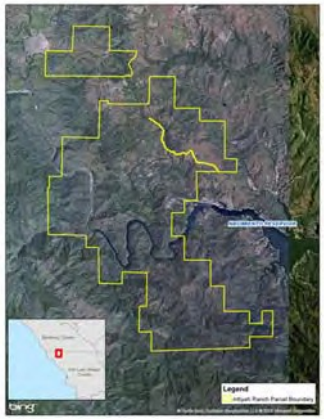
> *Project Elements are "building blocks" of region-specific activities derived from a thorough evaluation of the State's Resource Management Strategies (RMS) (**Section G – Resource Management Strategies**), and applied local Water Management Strategies (WMS), which consist of activities to promote the Goals and Objectives (**Section C –Goals and Objectives)** of the Updated Plan.*

The overlap of Project Elements amongst the selected projects illustrates the types of activities targeted for the IRWM region. The value of this understanding can further shape the high value projects or create additional and perhaps integrated projects where Project Elements are applied to several projects under one project/program umbrella. The synergism of combining related projects and sharing in the resources and learning from the combined efforts, are available if project sponsors want to improve the opportunity for outside funding. Additional detail for these opportunities and more information on each project is provided in the PWP.

SELECTED PROJECT TECHNICAL DESCRIPTIONS

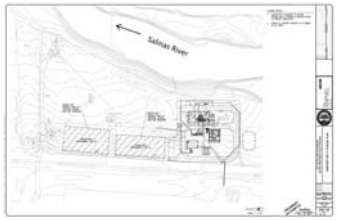
Project Title	Type	Project Elements	Technical and Strategic Summary
Livestock & Land Program	Educational Program	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination.	The Livestock and Land (L&L) Program addresses natural resource concerns faced by livestock owners by providing education, technical assistance and cost share for implementation of management measures. Water quality improvements will be achieved by giving livestock owners the tools to complete water quality site assessments and to implement Best Management Practices near listed waterways. The behavioral and management practice changes achieved by this program will provide immediate and lasting water quality and watershed improvements by reducing the off-site mobilization of manure, urine and sediments from livestock facilities. The program will make significant progress toward watershed goals listed in TMDLs and watershed plans.

Project Title	Type	Project Elements	Technical and Strategic Summary
LID Pilot Program 	Educational Program with Installation Drainage Devices to Optimize Irrigation and Groundwater Recharge	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Attenuate storm flows by increasing private property on-site retention and detention controls. • Provide public incentives to gain volunteer change in on-site water use and handling practices.	The Low Impact Development "Soak It Up" Rebate Program (Program) provides private property landowners in the North Coast and North County Sub-Regions rebates of up to 60% of the costs to install Low Impact Development (LID) features. The Program will include an education and outreach program available to all County residents regarding stormwater impacts of development and ways to reduce them. The US-LTRCD will provide free landscape assessments for property owners to determine appropriate LID strategies that can be implemented in order to reduce stormwater runoff and contamination. The property owner will receive a landscape assessment with site appropriate LID recommendations and plans. The property owner can build all or a portion of the LID features; and will pay for all costs of the installation. Those homeowners who build the features as per plan, pass an inspection, and sign a 10 year maintenance agreement with the RCD, can apply and receive up to 60% of the total project cost. The development of a LID grant program for private landowners will implement elements of local watershed plans with installation emphasis in severely drought affected watersheds, such as the Salinas River, Santa Rosa Creek, and San Simeon Creek. Strong support exists from both the civic community and the environmental community.
North County Fertilizer Regions_ Precision Agriculture 	Education Program with Changes in Fertilizing Practice	• Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	This project produces nutrient management recommendations based on fertilizer regions in the North County. Regions are identified using soil characteristics, since they have the most effect on nutrient management. Agricultural sites are chosen from applicants in these regions and three different packages of nutrient management BMPs and fertilizer programs will be implemented at each of 5 locations. The costs and benefits of the treatments will be compared and reported to interested parties, and demonstrated to the public through RCD-developed workshops and tailgate style demonstrations. BMP's and nutrient management programs will be evaluated by measuring soil and water nutrient concentrations before and after treatments are implemented. Recommendations will be based on economic, agricultural and environmental factors. Maps, recommendations and management plans will be created to be shared with the public.

Project Title	Type	Project Elements	Technical and Strategic Summary
Attiyeh Ranch Conservation Easement 	Conservation Easement for the Protection of Lands in Perpetuity	• Create and preserve natural ecosystems and protect endangered flora and fauna through Land Stewardship and Conservation Easement programs. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	Easement to protect against land uses to ensure the land is managed consistent with the project goals. Land use impacts without the easement include: • Subdivision • Construction of houses or other structures • Waste dumps • Grading and soil dumping • Surface and/or subsurface mineral development • Installation of new above-ground utility systems, including, without limitation, water, sewer, power, fuel, and communication lines and related activities and equipment, except for systems servicing permitted agricultural uses on the ranch and existing structures • Cutting or removal of native trees, shrubs, or other vegetation, except for continued reasonable land management purposes, and as may be necessary for elimination of diseased growth, fire protection, and similar protective measures, and to protect human safety

Project Title	Type	Project Elements	Technical and Strategic Summary
Atascadero Groundwater Basin Augmentation Expansion Project 	Recyled Water Use, Groundwater Recharge, and New Potable Supplies	• Develop and improve water and wastewater treatment facilities to reduce point source discharges of contaminants to natural streams. • Develop and Improve methods of water reuse within a community.	The Templeton Community Services District (TCSD) currently utilizes two wastewater treatment and disposal options. Approximately 220,000 gpd are sent to the Paso Robles WWTP for treatment and disposal directly to the Salinas River, and the remainder of effluent (150,000 gpd) is treated by the TCSD Meadowbrook WWTP and discharged at the Selby Ponds where the treated wastewater percolates into the shallow aquifer system and the Salinas River underflow (highly transmissive soils underlying the Salinas River laid down over time). The TCSD already has the permitted capacity to treat 600,000 gpd of wastewater at its Meadowbrook WWTP and discharge the treated wastewater at the Selby Ponds, inclusive of the redirected 220,000 gpd, per existing WDR Order No. R3- 2007-0029. The proposed Atascadero Groundwater Basin Augmentation Expansion Project proposes to utilize the entire wastewater generated by the TCSD to augment local groundwater supplies for beneficial use within the community. The project has a number of distinct components that make up the entire project. For ease of explanation, they are broken down below as follows: **East Side Force Main and Lift Station Project (ESFM Project):** • Cessation of conveyance by TCSD of any wastewater to the Paso Robles WWTP where the treated wastewater is discharged to the Salinas River; • The Templeton Community Services District (TCSD) proposes to re-route the treatment and disposal location. Pipeline construction along a 2.4 mile corridor; Concurrently with the planning and development of the East Side Force Main and Lift Station Project (ESFM Project), the Meadowbrook WWTP is undergoing intensive study and evaluation to optimize the treatment and quality of the effluent. Once the new lift stations and force mains are completed, the operation of the Meadowbrook WWTP will be operating under optimum conditions. The goal is to insure that the highest quality water is percolated into the groundwater basin. Tertiary treatment at the WWTP will also be added to provide an additional level of treatment required to improve the percolation rates, meet future recycled water needs within the basin, and to meet anticipated regulatory requirements. While current and future flow estimates are considered in the design of the West Side Lift Station, actual facility operations and equipment are to be upgraded to meet the increase in wastewater flows. The West Side Lift station, as well as the collection system downstream of the discharge point (Peterson Ranch Rd.) of the Project will be upgraded to accommodate current and planned future wastewater flows. The Meadowbrook WWTP currently utilizes a manual bar screen to prevent large debris from entering the AIPS pond system. An improvement in screening will improve the overall performance of the plant by preventing a larger percentage of inorganic debris from entering the process and increasing employee safety. This component will ensure system reliability, regulatory compliance and assist in meeting water quality objectives.

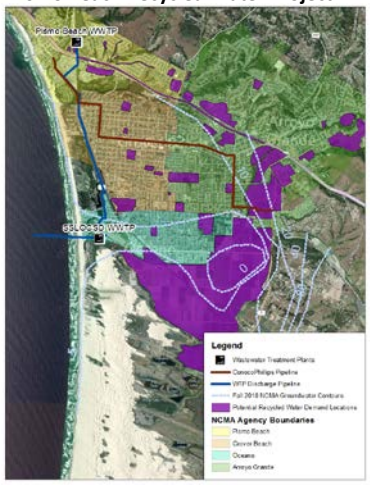
Project Title	Type	Project Elements	Technical and Strategic Summary
Community Based Social Marketing	Educational Program	• Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater. • Provide cost-effective alternatives to private property owners in managing on-site sources of contamination. • Provide public incentives to gain volunteer change in on-site water use and handling practices.	Severe water supply shortages and TMDL listings show that residents in the Paso Robles Groundwater Basin require urgent outreach to bring an understanding of how residents can participate in creating solution-oriented behavior changes for water conservation and basin sustainability. The US-LTRCD plans to implement a community-based social marketing campaign (CBSM) to address water quality as well as quantity. This pragmatic approach involves an interactive program identifying the barriers to a behavior that is debilitating to the Paso Robles Basin, developing dynamic and synergistic programs (and/or existing programs) to overcome these barriers, implementing an interactive program of education and outreach across the communities within the basin area and then evaluating the effectiveness of the program by tracking and establishing if behavior changes have occurred. The more direct involvement with the communities in the Paso Robles Basin area, the more we will foster more sustainable behavior. By developing and implementing this program, individuals, businesses and the agricultural community will be educated on the cause/effect relationship with actions within the homes and within business and farm practices that harm and deplete the area's water supply. This education will be paired with practical ways on how these behaviors can be modified to directly support the mission of reducing greenhouse gas emissions, water conservation and preservation while positively impacting climate change.
North County Precision Irrigation Research Program_ Precision Agriculture 	Education Program with Reductions in Irrigation Water Use	• Provide public education in the value of conserving water for purposes of achieving sustainable surface water and groundwater drinking water supplies. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	Irrigated agriculture is a large user of water and energy in San Luis Obispo County. This program develops benchmarks for energy and water conservation by identifying through pump efficiency and irrigation distribution uniformity analysis poorly performing irrigation systems. Applications will be accepted from growers willing to cost share system components, adjust management practices, and share findings and conclusions with the public. The Center for Irrigation Technology and Advanced Viticulture will aid in experimental design and control. Soil moisture meters and weather stations will be installed on 5 North County sites. The sites will be monitored for 2-3 growing seasons, and system performance evaluated by changes in crop yields, and water and energy use. The findings of this project will be made available to the public by reports, website outreach, and workshops generated by the US-LTRCD, Vineyard Team and Stockman's Energy. Growers who receive the systems will be able to keep the equipment, but will be required to pay for any ongoing costs after the research has been completed.

Project Title	Type	Project Elements	Technical and Strategic Summary
City of Paso Robles Lake Nacimiento Water Treatment Plant Construction 	New Water Treatment Plant	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Implement groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	The City of Paso Robles currently relies on water from two sources: Salinas River underflow wells and groundwater from the deeper formation of the Paso Robles Groundwater Basin. Significant groundwater level declines in City wells and other basin wells have been occurring since the 1990's. San Luis Obispo County has certified the basin as a Level of Severity III, indicating the demand for water will equal or exceed its supply before supplemental supplies can be developed. The Lake Nacimiento Water Treatment Project will provide additional potable water for the City of Paso Robles, enabling the City to reduce groundwater pumping within the overdrafted Paso Robles Groundwater Basin. City of Paso Robles water deliveries for 2005 and 2010 were 7,163 acre-feet per year (AFY) and 5,749 AFY, respectively. Water deliveries in 2010 were much lower than 2005 deliveries because of mandatory City- wide outdoor water use restrictions implemented in 2009. Level 2 of the City's Water Conservation Ordinance and Water Shortage Contingency Plan (See Attachment) was implemented to reduce summer peak water demands and thereby manage a projected water production shortfall of 20 percent. These restrictions will be lifted when the Lake Nacimiento surface water supply becomes usable by Paso Robles. As the projected customer water deliveries are expected to increase to 12,460 AFY in 2035 (2010 UWMP). City is committing to 4,000 AFY initially.
San Miguel Critical Water System Improvements 	System Improvements Including Backup New Generators	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Seek outside funding for water and flood control projects in low income areas	This project is seeking construction of six of the highest priority, critical water supply projects as listed below. The District needs to implement all six of these identified projects in the immediate future, or they will be faced with continued deterioration of an already deficient water system, and may not be able to support even limited beneficial growth with the identified deficiencies that face the District's water system. 1. **New Fire Hydrants and Wharf Head Replacements** – Thirteen (13) new fire hydrants to replace inadequate and aging hydrants. 2. **Well 3 Rehabilitation** - Well 3 is over 40 years old and requires upgrades in the well motor housing, disinfection system, electrical wiring, backup power generation and the protective structural building. 3. **New Water Well Siting Study** – Respond to the urgent need of replacing the San Lawrence Terrace Well, taken out of service because of high arsenic concentrations, and providing water supply redundancy in the event of an emergency shutdown of any three existing wells. 4. **Emergency Backup Power** – Equip Well 3 and Well 4 with power generators in the event of power failures to maintain a minimum supply of water during widespread power outages. 5. **New Water Storage Tank** – Construct the San Lawrence Terrace Water Storage Tank with 0.25 million gallons for capacity and water quality improvements. 6. **12th and K Street Water Main Upgrades** – Replace old and undersized piping at 12th Street and K Street.

Project Title	Type	Project Elements	Technical and Strategic Summary
8th Street Upper Aquifer Well and Nitrate Removal Facility 	New Treatment and Supply Well Facilities	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	The Los Osos Community Services District (LOCSD) is proposing to construct a new upper aquifer well and nitrate removal system at an existing water well facility in the community of Los Osos. The project includes installation of a new well with well pump, ion-exchange nitrate removal skid-mounted treatment system, pre-manufactured 600 square foot metal building, 5,000 gallon High Density Polyethylene (HDPE) tank, and various piping to connect the site's existing facilities to the new structures. The new well will be approximately 125 feet deep and it is estimated that the pumping capacity will be 150 gallons per minute (150 AFY). The new well will be drilled adjacent to the existing lower aquifer well at the 8th Street and El Moro Street Utility Water Yard location. Both the new and existing well heads will be enclosed in a new pre-engineered metal warehouse building along with the nitrate removal treatment equipment. The existing wellhouse for the lower aquifer will be demolished. Water from the new well will be pumped through the nitrate removal facility and then piped to the main LOCSD water distribution system. Brine from the nitrate removal ion exchange unit will be stored in a 5,000 gallon tank adjacent to the wellhouse building and periodically trucked offsite to an approved disposal facility. Based on the capacity of the new well pump, it is estimated that the brine tank will need to be drained approximately four (4) times per week. On August 5, 2008, the Court approved an Interlocutory Stipulated Judgment (ISJ) between LOCSD, Golden State Water Company, S&T MWC and the County. The ISJ formed a Working Group with the purpose of researching the current condition and uses of the Los Osos Groundwater Basin, and adopting a Basin Management Plan (Basin Plan) to resolve conflicting claims related to Basin water resources. The Basin Plan is the result of those efforts and is intended to fulfill the obligations of the Parties pursuant to the ISJ. As a member of the ISJ Working Group, LOCSD has identified certain projects that provide an overall benefit to the groundwater basin. This project will ultimately benefit all Water Purveyors in the Los Osos Basin (Golden State Water Company, S&T Mutual Water Co. and LOCSD) by reducing the pumping on the Lower Aquifer and increasing the production from the Upper Aquifer, which will help reduce sea water intrusion and reduce the risks to each of the water purveyor's water supply wells.

Project Title	Type	Project Elements	Technical and Strategic Summary
Los Padres CCC Center - Stormwater LID Treatment Project 	Education and Improved Ecosystem	• Develop methods of adapting to Climate Change and other vulnerabilities to the region's water resources. • Create and Preserve natural ecosystems and protect endangered flora and fauna through Land Stewardship and Conservation Easement programs. • Develop and Improve methods of water reuse within a community. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	The Los Padres Center Project represents a Low Impact Development (LID) implementation project at a scale and under ownership where research, education, and water resources management can take place concurrently within a self-contained ecosystem. While not a large project, the Los Padres Center Project does offer opportunities for land use agencies to see and understand the elements of LID The area of land that will be benefitting from Stormwater LID Treatments belongs to the National Guard and are leased by the California Conservation Corps (CCC). The CCC - Los Padres Center is a residential center where approximately 80 corpsmember reside. Participants are 18-25 years old and sign up for 1 year to work on conservation projects that teach them skills and earn educational scholarships to help them be employable when they leave the CCC. The Center is located next to Chorro Creek and Poison Ivy Creek. By implementing this project the corpsmembers will not only benefit by learning LID techniques, and the importance of water quality and water conservation but will also benefit by having a more livable area at the center that will thoroughly engage them in land stewardship that they will take with them when they move on. Chorro Creek and listed endangered species such as, steelhead and California red-legged frogs will benefit by a reduction in peak run-off that degrades water quality and quantity by creating detention basins keeping the water on the land longer before slowly discharging in Chorro Creek. Morro Bay National Estuary Program brings together citizens, local governments, non-profits, agencies and landowners to protect and restore Morro Bay. This project is a collaboration with the CCC and the National Guard to implement a demonstration project that will target action items outlined in their Comprehensive Conservation Management Plan that provides guidance on recovery actions that will result in restoring and protecting the Bay by improving water quality, enhancing steelhead habitat, conserving water and providing natural environments for citizens to enjoy. The CCC Stormwater LID Treatment project is an ambitious demonstration project which will focus on eliminating flooding at CCC Buildings while also increasing groundwater infiltration and habitat restoration by installing site specific topographical earthwork features. The project estimates that on-site earthwork and plumbing can mitigate over one million gallons of water on the project site while attenuating adjacent Chorro Creek storm surges through seven acres of habitat restoration. By widespread land cover and shade tree installation at 43% of the project site, groundwater recharge areas will be increased. Reducing energy costs and local water supply reserves, including recycled onsite water (greywater, rainwater, mechanical), will be utilized for irrigation and indoor non-potable water uses such as toilet flushing. Two constructed wetlands will contribute to the largest reduction in the large storm event runoff, while greatly improving stormwater quality and potential for recreational activities such as birding and onsite watershed education. Over 9280 native and food bearing plants will be planted to cool buildings and reduce energy use while greatly improving the aesthetic and educational environment for the resident CCC corps members and nearby San Luis Obispo residents. Seven "living areas" will be installed through placement of plantings and earthworks to reduce off-site travel of CCC Corps members and increasing onsite recreational and learning opportunities. This project aims to be a learning laboratory for the corps members and future watershed crews. The corps members will be active and included on the CCC Native Greenhouse onsite; installation of the earthworks: inclusion in the construction of infiltration basins and bioswales by directed CCC corps members; take a part in planting and maintenance of plants; and assist in plumbing irrigation of specific plants through recycled onsite waters (i.e., grey water and captured stormwater).

Project Title	Type	Project Elements	Technical and Strategic Summary
Oceano Drainage Improvement Project - Hwy 1 & 13th Street 	Drainage Project with Groundwater Recharge	• Attenuate storm flows and improve stormwater quality by increasing on-site retention and detention controls. • Seek outside funding for water and flood control projects in low income areas. • Provide public education in the value of habitat restoration and protection of water quality and quantity in natural streams and groundwater.	The Project includes construction of approximately 1,500 feet of storm drain pipe, to convey drainage from the intersection of Highway 1 and 13th Street, and an outfall pond (sedimentation basin). The basin will collect storm flows and allow debris and sediments to settle out prior to discharge through the existing 36-inch culvert or a new box culvert located in the Arroyo Grande Creek levee. The project is located at the low point of an approximately 40.5 acre drainage shed area. The existing system is undersized for small storm events and as a result floods the Hwy 1 and 13th Street intersection and adjacent properties. The project will reduce the frequency of drainage issues at Hwy 1 and 13th Street by constructing drainage facilities that collect and convey flows to the Arroyo Grande Creek channel. The project will also lessen flows to the Meadow Creek Lagoon area, thereby_ helping to mitigate the existing drainage issues for downstream residences, businesses and the South County Sanitation District facilities. The project will reduce maintenance and storm related management of the surrounding area. It will improve access and circulation on Hwy 1 and adjacent roadways as well as increasing the efficiency of road operations and improve emergency response times for the surrounding area.
Lopez Water Treatment Plant Membrane Rack Addition 	Water Treatment Plant Expansion	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	Five communities receive treated water from the Lopez WTP and are entitled to varying quantities of treated water. The percentage that each community is entitled to, and therefore, the degree of benefit is as follows: Arroyo Grande - 50%, Oceano - 7%, Grover Beach - 18%, Pismo Beach - 20%, and CSA 12 (Avila Beach) - 5%. The Lopez WTP is a membrane filtration plant designed to treat surface water from Lopez Lake, a dam built in 1969 along the Arroyo Grande watershed. The Lopez Water Treatment Plant (WTP) Membrane Rack Addition Project involves the installation of additional membrane filter modules in the existing five membrane filtration racks and the construction of a new sixth membrane filtration rack. Addition of the membrane filtration modules and the membrane filtration rack will increase the WTP's filtration capacity enabling it to distribute more water to Zone 3 Agencies (five communities) and to provide greater reliability. The current membrane filtration capacity of the Lopez WTP is not sufficient to provide Zone 3 communities with their peak demands with available surface water. Because of this capacity limitation, these agencies pump groundwater, even when they have excess surface water entitlements and allocations available to them. Groundwater demands increase risk of saltwater intrusion and decrease availability of groundwater. Groundwater quality is also not as good as treated Lopez water. This project would enable the Lopez WTP to provide enough treated water to meet peak demands, thus, reducing groundwater pumping and improving water quality. The existing five membrane filter racks at the Lopez WTP require frequent and routine cleaning and maintenance, requiring certain racks to go 'off-line' for cleaning. Some cleaning requires two racks to be 'off- line' at the same time. During these types of cleaning and maintenance procedures, the Lopez WTP cannot produce peak contractual water allocation demands. The addition of membrane filter modules to the existing rack and an additional membrane filtration rack would allow cleaning and maintenance to occur while producing peak contractual water allocation demands.

Project Title	Type	Project Elements	Technical and Strategic Summary
Recycle Water Distribution System Expansion 	Recyled Water System Expansion	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop new groundwater management projects to improve the quality and quantity of groundwater in accordance with a regional stakeholder-based groundwater basin plan.	The project proposes to extend the City's recycled water distribution system from the existing 14-inch ductile iron recycled water main on Madonna Road with approximately 2,000 feet of new six-inch recycled water main to serve CL Smith Elementary School. Recycled water mains would be installed along Oceannaire Drive, Lakeview Drive, and Balboa Street, to CL Smith Elementary school located at 1375 Balboa Street. A new water service and water meter would be installed to serve the School's landscape. Minor modifications would be made to the School's irrigation system consistent with Title 22 requirements for signage and tagging of irrigation equipment. CL Smith Elementary School will be served recycled water from the existing 600,000 gallon recycled water storage tank and pump station at the City's Water Reclamation Facility. The San Luis Coastal Unified School District's Grounds Maintenance personnel are trained in the use of recycled water as Laguna Middle School is currently served recycled water by the City. The City has been delivering recycled water for landscape irrigation purposes since 2006 when improvements at the City's Water Reclamation Facility were completed as well as the first eight miles of pipeline for the recycled water distribution system. Annual deliveries have increased from 77.17 acre feet in 2007 to over 170 acre feet in 2013 at parks, the middle school, golf course, sports fields, and other sites. The City's goal is to deliver 1,000 acre feet per year of recycled water through retrofitting existing irrigation systems and connections to serve new development in the City. Demand to provide recycled water for landscape irrigation exists proximate to the City's existing recycled water distribution system; however, extensions of the distribution system are needed to connect future customers. CL Smith Elementary School was identified as a priority connection as it is located proximate to an existing backbone recycled water main.
Pismo Beach Recycled Water Project 	Recycled Water System Expansion	• Develop new treatment and conveyance facilities to increase and protect the availability of existing water supplies. • Develop and Improve methods of water reuse within a community •Develop and improve water and wastewater treatment facilities to reduce point source discharges of contaminants to natural streams •Seek outside funding for water and flood control projects in low income areas.	The project includes the design and construction of a recycled water treatment and distribution system for the City of Pismo Beach. The project would make recycled water available for the City, its customers, and potentially others in the South County Subregion if excess recycled water is available. The project includes upgrades to the existing wastewater treatment facility and construct of a recycled water distribution system to deliver water to landscape irrigation customers. The first phase of the distribution system would include providing recycled water to Caltrans for irrigation along US 101. The City is partnering with adjacent agencies so that in the future a regional recycled water treatment program could be developed in conjunction with the SSLOCSD to make additional recycled water available for the South County Sub-Region. Possible future uses for recycled water include: groundwater recharge; agriculture irrigation; seawater intrusion barrier; stream flow augmentation; etc. The Project addresses the need for increased supply reliability and drought preparedness by: 1) bringing a new water supply for beneficial use online, 2) improving operational flexibility and reliability of existing supplies, 3) creating a potential source of supply for groundwater storage projects, 4) maintaining and improving water quality of the groundwater basin through demand offset, 5) providing a potential supply source for augmenting stream flows, 6) improving water-related needs of a DAC, 7) implementing public education and outreach, and 8) preventing water supply and conservation projects from detrimentally impacting the water quality in the basin.

STRATEGIC CONSIDERATIONS

The first step in the project review process places each project into an Objectives filter where a scoring system is applied to determine where a project succeeds in satisfying the IRWM Plans Goals and Objectives.[5] The scoring system used is as follows:

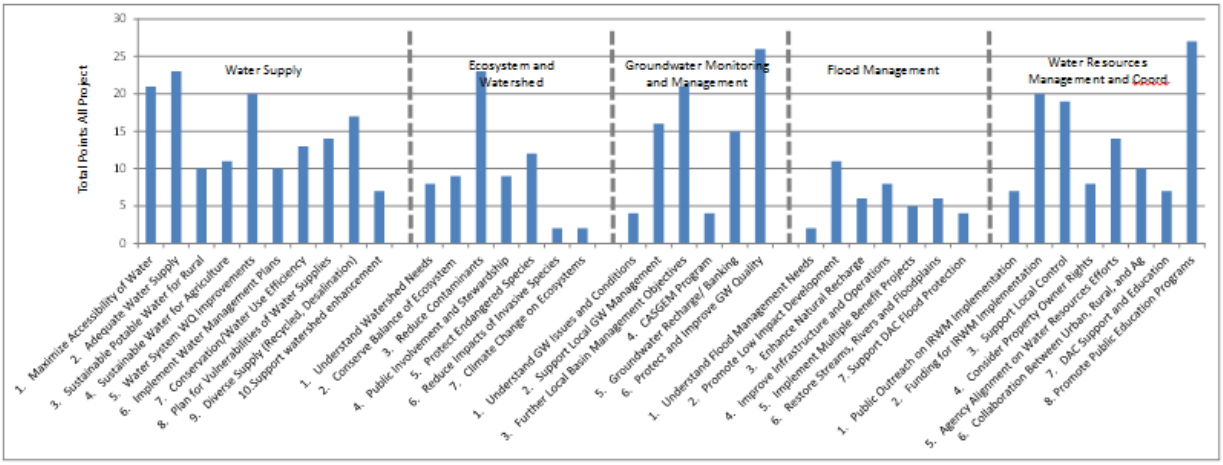
Score

1 – Project partially satisfies the Objective's intent but is not focused on achieving the Objectives intended outcome.

2 – Project is not directly aimed to satisfy the Objective's intended outcome, but Objective benefits can be measured, either qualitatively or quantitatively as part of implementation.

3 – Project is directly aimed to meet the Objective's intended outcome and includes a monitoring program for qualitative or quantitative measurement the Objectives physical benefits.

The figure below illustrates how the collective Project Short List's Project Elements meet IRWM Plan Objectives. To some extent, this chosen suite of IRWM Projects addresses all IRWM Plan objectives. The information gathered from this exercise is further used in associating the Project Elements (i.e., derived from WMS and RMS), as described in the individual in the Project Elements section in the PWP. From the figure, the Water Supply Goal shows to have the highest number of project benefits, and the Flood Management Goal the lowest number of benefits. Overall, the level of uniformity provides a high level of confidence in meeting each of the IRWM Plan's Objectives.



[5]All information contained within the PWP is derived from the Long Form and Objectives Worksheet; however, in cases where a difference is noted, the PWP takes precedence over both documents.

Appendix H.

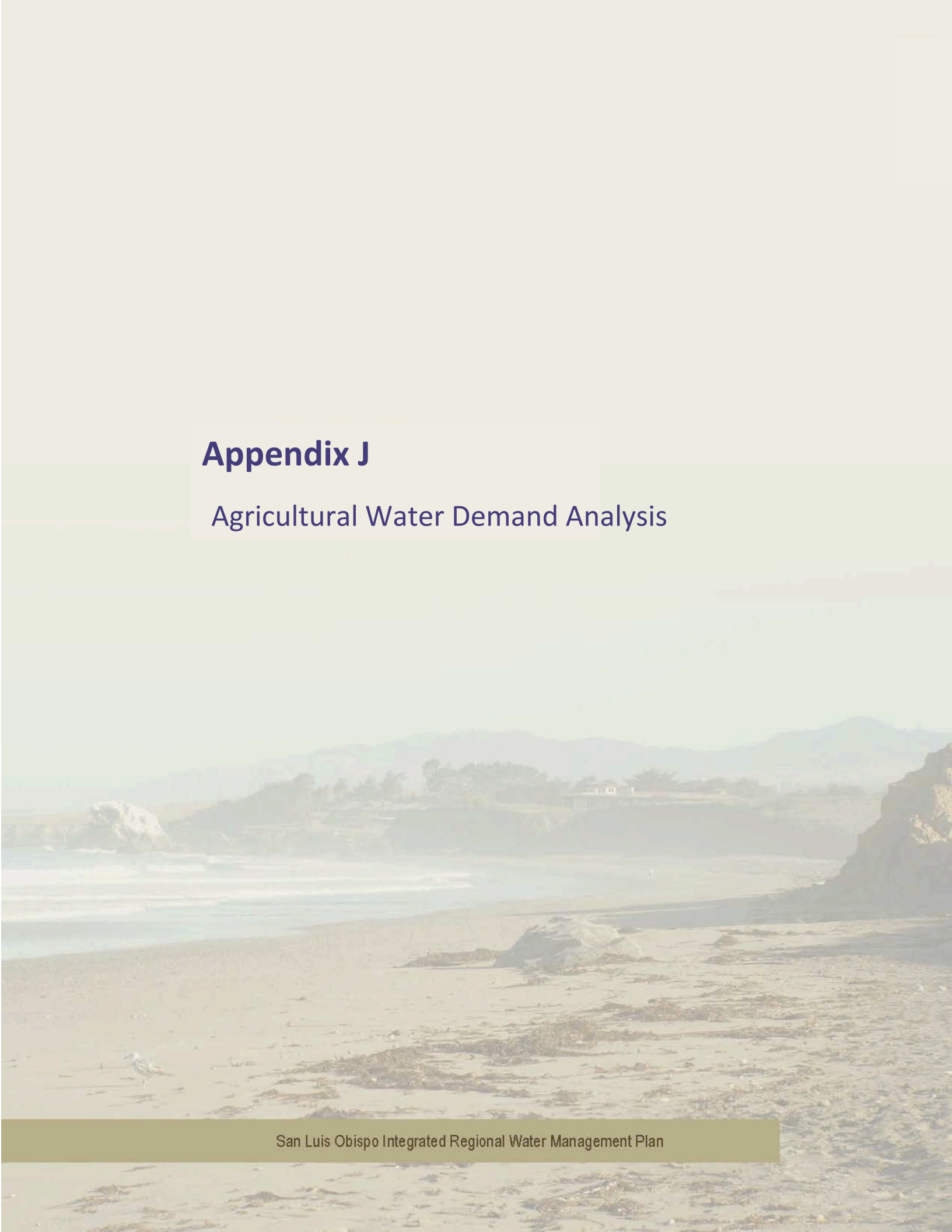
Not Used

Appendix I.

Public Comments on Goals and Objectives and Draft IRWM Plan
(See File on CD I by Sections.zip)

Appendix J

Agricultural Water Demand Analysis



Appendix J. Agricultural Water Demand Analysis

Table of Contents

J.1 Introduction J-3
J.1.8 Purpose of Agricultural Demand Study J-4
J.2 Existing (2010) versus Future Agricultural Demand Factors J-5
J.2 Development of Agricultural Crop Areas J-7
J.3 Estimated Water Demands J-12

List of Figures

Figure J-1. Agricultural Areas J-3
Figure J-2. North Coast Agriculture (Existing) J-8
Figure J-3. South County Agriculture (Existing) J-9
Figure J-4. North County Agriculture (Existing) J-10
Figure J-5. Pie Chart of Crop Categories J-11
Figure J-6. Pie Chart of Existing Crop Demands J-12
Figure J-7. Pie Chart of Future Crop Demands J-13
Figure J-8. Comparison Between Existing and Future Demands by WPA J-14
Figure J-9. Pie Chart of Adjusted Future Crop Demands J-15

List of Tables

Table J-1. Crop Group Primary Commodities J-4
Table J-2. Existing Unit Water Demand Factors (Average or Medium Conditions) J-6
Table J-3. Future Unit Water Demand Factors (Average or Medium Conditions) J-6
Table J-4. Percent Change in Water Demand Factors J-7
Table J-5. Existing (2013) Irrigated Acreage Totals by WPA J-11
Table J-6. Existing (2013) Existing Agricultural Demands by WPA (AF/year) J-12
Table J-7. Future (2035) Agricultural Demands by WPA from Master Water Report (AF/Year) J-13
Table J-8. Future (2035) Agricultural Demands by WPA (AF/Year) J-15
Table J-9. Interpolation of Crop Categories for Database J-16

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Appendix J. Agricultural Water Demand Analysis

J.1 INTRODUCTION

Agricultural water demand (see **Figure J-1**) refers to the annual applied water in all irrigated agricultural areas in the IRWM planning region.

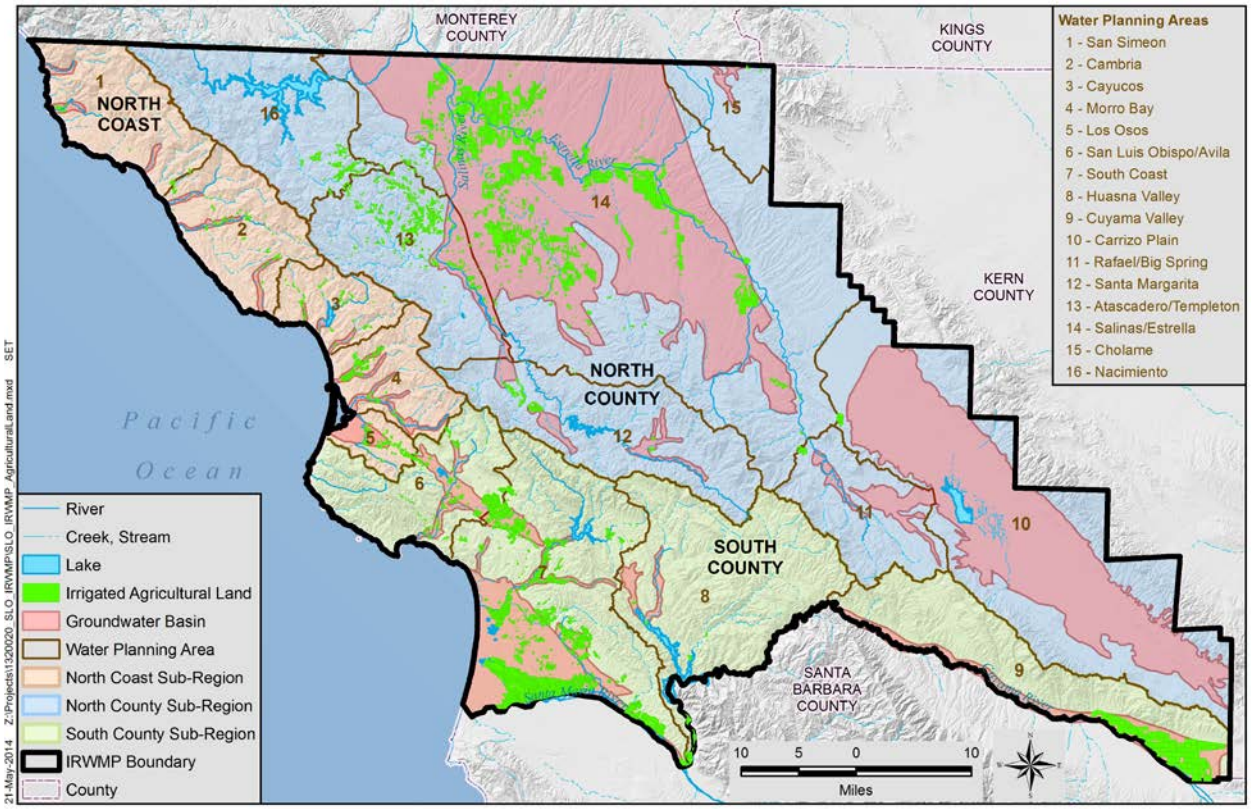


Figure J-1. Agricultural Areas

The current agricultural water demand was calculated using the same method and crop-specific applied water variables employed by the MWR, which utilized information on crop evapotranspiration, effective rainfall, leaching requirements, irrigation efficiency, deficit irrigation, and frost protection. The variables used in the 2012 MWR were reviewed and determined to be the most current values available. The Agricultural/Crop ArcGIS® layer for the San Luis Obispo County from August 2013 was provided to update the 2008 MWR agricultural water use estimates. The seven (7) crop categories presented in the IRWM represent approximately 37 crop types (or Primary Commodities, see **Table J-1**) with each category's water demand being based on a calculation of applied water using the crop-specific

evapotranspiration, contribution from rain or shallow water table, leaching requirements, irrigation efficiency, and frost protection.

Table J-1. Crop Group Primary Commodities

Seven (7) Crop Categories	Crop Types (Primary Commodities)	
Alfalfa	• Alfalfa	
Nursery	• Christmas trees • miscellaneous nursery plants	• flowers
Pasture	• miscellaneous grasses • mixed pasture	• sod/turf • sudan grass
Citrus	• Avocados • Grapefruits • Lemons	• Oranges • Olives • Kiwis • pomegranates
Deciduous	• Apples • Apricots • Berries • Peaches • Nectarines • Plum	• Figs • Pistachios • Persimmons • Pears • Quince • strawberries
Vegetables	• Artichokes • Beans • miscellaneous vegetables • Strawberries	• mushrooms • onions • peas • peppers • tomatoes
Vineyard	• wine grapes • table grapes	

For the Paso Robles groundwater basin, agricultural areas were taken from the recent groundwater modeling effort to ensure consistency of the two ongoing efforts. Replacement of the Paso Basin areas in the county data was done in GIS to create a single irrigated agricultural area layer for calculation purposes.

For details on the methodology used for deriving the crop water duty factors and calculating agricultural water demands, see Chapter 4.6.3 of the MWR.

J.1.8 *Purpose of Agricultural Demand Study*

As in all planning studies where demand projections are based on what is known today, with an eye towards the future, a number of assumptions are made in the development of the San Luis Obispo Region water demand analysis. For agriculture, the 2013 GIS analysis conducted for agricultural demands was used to extract the crop acreages for each of the Water Planning Areas (WPAs). This appendix on agricultural demands is meant to provide:

- a presentation of the unit demand factors
- the 2013 acreage of each crop category
- the estimated existing and future agricultural water demands

J.2 EXISTING (2010) VERSUS FUTURE AGRICULTURAL DEMAND FACTORS

The development of a present (or existing) and future agricultural demand is documented in the MWR by considering different hydrologic cycles, levels of potential growth or decline in the amount of agricultural lands, and changes in irrigation practices affecting unit water demand factors. The approach taken with the IRWM Plan is to pick a single baseline set of demand factors, knowing that demands change considerably between wet and dry hydrologic cycles.

The rationale behind this approach is to fully develop the need for water in terms of a quantifiable value to make direct comparisons with the amount of available supply. By reducing the "concept" of using ranges in values, the IRWM Plan creates a repeatable calculation which can be improved upon in each of the plan update iterations. The medium (or average) demand is the term used in the MWR and in this document when referring to the hydrologic conditions used for purposes of the plan.

Future average demands differ from current (or present 2013) demands because of expected changes in irrigation practices as water becomes more expensive and scarce, and technology provides a better indication of the need for applied water when water drops below the field capacity for the different crop types, including intentional deficit irrigation practices being applied in some cases. The MWR provides both existing and future demand factors to be applied to the existing and future agricultural areas. A presentation of the water demand factors is provided in **Table J-2**, **Table J-3**, and **Table J-4**.

As discussed above, the listed demand factors take into account all of the variables which go into a soil moisture accounting for each crop in each of the WPAs. The variation between WPA's is very apparent with demand factors increasing as the WPAs work their way to the north and south eastern portions of the county where there is much less rainfall and where the marine layer is not an influence on available water to meet the evapotranspiration requirements of the crops.

The negative percent differences between existing and future demand factors presented in **Table J-4** provides insight into the planned opportunities to conserve water in the future by including higher irrigation efficiencies.[1]

[1] Differences above 10% were reviewed and found to be in error in the MWR calculations and corrected.

Table J-2. Existing Unit Water Demand Factors (Average or Medium Conditions)

WPA Label	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard	Average for WPA
1 San Simeon	1.99	0.86	1.36	1.05	2.13	1.66	0.37	1.35
2 Cambria	1.99	0.86	1.36	1.05	2.13	1.57	0.37	1.33
3 Cayucos	2.15	1.00	1.51	1.18	2.30	1.61	0.49	1.46
4 Morro Bay	2.73	1.46	1.99	1.61	2.88	1.84	0.81	1.90
5 Los Osos	2.73	1.46	1.99	1.61	2.88	1.84	0.81	1.90
6 San Luis Obispo/Avila	2.92	1.48	2.11	1.66	3.08	1.99	0.81	2.01
7 South Coast	3.34	1.84	3.26	2.00	3.52	2.12	1.04	2.45
8 Huasna Valley	5.61	2.96	4.43	3.14	5.67	2.82	2.17	3.83
9 Cuyama Valley	5.61	2.96	4.43	3.14	5.67	2.82	2.17	3.83
10 Carrizo Plain	5.90	3.21	4.69	3.37	5.96	2.92	2.39	4.06
11 Rafael/Big Spring	5.61	2.96	4.43	3.14	5.67	2.82	2.17	3.83
12 Santa Margarita	3.88	1.82	3.03	1.98	3.92	1.94	1.42	2.57
13 Atascadero/Templeton	3.88	1.82	3.03	1.98	3.92	1.94	1.42	2.57
14 Salinas/Estrella	4.52	2.30	3.55	2.46	4.56	2.29	1.73	3.06
15 Cholame	5.72	2.93	4.54	3.09	5.77	2.57	2.31	3.85
16 Nacimiento	3.88	1.82	3.03	1.98	3.92	1.94	1.42	2.57
Average for Crop Categories	**3.90**	**1.98**	**3.05**	**2.15**	**4.00**	**2.17**	**1.37**	**2.66**

Table J-3. Future Unit Water Demand Factors (Average or Medium Conditions)

WPA Label	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard	Average for WPA
1 San Simeon	1.85	0.80	1.28	0.97	1.98	1.56	0.36	1.26
2 Cambria	1.85	0.80	1.28	0.97	1.98	1.47	0.36	1.25
3 Cayucos	2.00	0.94	1.41	1.10	2.13	1.51	0.47	1.37
4 Morro Bay	2.54	1.37	1.86	1.49	2.67	1.73	0.78	1.78
5 Los Osos	2.54	1.37	1.86	1.49	2.67	1.73	0.78	1.78
6 San Luis Obispo/Avila	2.71	1.39	1.98	1.54	2.86	1.86	0.77	1.87
7 South Coast	3.10	1.72	3.11	1.86	3.27	1.99	0.99	2.29
8 Huasna Valley	5.33	2.84	4.25	2.98	5.39	2.70	2.10	3.65
9 Cuyama Valley	5.33	2.84	4.25	2.98	5.39	2.70	2.10	3.65
10 Carrizo Plain	5.61	3.07	4.50	3.20	5.65	2.80	2.31	3.88
11 Rafael/Big Spring	5.33	2.84	4.25	2.98	5.39	2.70	2.10	3.65
12 Santa Margarita	3.69	1.74	2.91	1.88	3.72	1.86	1.37	2.45
13 Atascadero/Templeton	3.69	1.74	2.91	1.88	3.72	1.86	1.37	2.45
14 Salinas/Estrella	4.29	2.20	3.41	2.33	4.33	2.20	1.67	2.92
15 Cholame	5.43	2.80	4.35	2.93	5.48	2.46	2.23	3.67
16 Nacimiento	3.69	1.74	2.91	1.88	3.72	1.86	1.37	2.45
Average for Crop Categories	**3.69**	**1.89**	**2.91**	**2.03**	**3.77**	**2.06**	**1.32**	**2.52**

Table J-4. Percent Change in Water Demand Factors

WPA Label	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard	Average for WPA
1 San Simeon	-7.2%	-6.4%	-6.3%	-7.3%	-7.2%	-6.2%	-2.5%	**-6.1%**
2 Cambria	-7.2%	-6.4%	-6.3%	-7.3%	-7.2%	-6.2%	-2.5%	**-6.1%**
3 Cayucos	-7.2%	-6.3%	-6.3%	-7.2%	-7.1%	-6.2%	-3.3%	**-6.2%**
4 Morro Bay	-7.1%	-6.2%	-6.2%	-7.2%	-7.1%	-6.2%	-4.4%	**-6.3%**
5 Los Osos	-7.1%	-6.2%	-6.2%	-7.2%	-7.1%	-6.2%	-4.4%	**-6.3%**
6 San Luis Obispo/Avila	-7.1%	-6.3%	-6.2%	-7.2%	-7.1%	-6.2%	-4.4%	**-6.4%**
7 South Coast	-7.1%	-6.2%	-4.7%	-7.1%	-7.1%	-6.2%	-4.8%	**-6.2%**
8 Huasna Valley	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.5%	**-4.4%**
9 Cuyama Valley	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.5%	**-4.4%**
10 Carrizo Plain	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.5%	**-4.4%**
11 Rafael/Big Spring	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.5%	**-4.4%**
12 Santa Margarita	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.3%	**-4.4%**
13 Atascadero/Templeton	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.3%	**-4.4%**
14 Salinas/Estrella	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.4%	**-4.4%**
15 Cholame	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.5%	**-4.4%**
16 Nacimiento	-5.0%	-4.2%	-4.0%	-5.1%	-5.1%	-4.1%	-3.3%	**-4.4%**
Average for Crop Categories	**-5.9%**	**-5.1%**	**-4.9%**	**-6.0%**	**-6.0%**	**-5.0%**	**-3.6%**	**-5.2%**

J.2 DEVELOPMENT OF AGRICULTURAL CROP AREAS

As mentioned in the introduction, the number of variables used in the calculation of the water supply requirements for each crop category are numerous and complex. One of the most important of these variables is the crop area within each WPA. The GIS overlay for irrigated croplands was developed by the County of San Luis Obispo, and supplemented with data from the Paso Robles Groundwater Model crop accounting (i.e., done to ensure consistency with the model). The crop areas are indicated in **Figure J-2**, **Figure J-3**, and **Figure J-4**.[2]

Knowing the crop categories and their acreages for each of the WPAs is the initial step taken in the demand calculation. The results of the GIS exercise of creating a cross-section layer with the WPA boundaries by overlaying the crop polygon boundaries were used for the existing agricultural demand. The results, in terms of areas for each Sub-Region, are shown in **Table J-5**.

Development of future agricultural demands is based on the MWR, except in cases where professional judgment is used to account for expected discrepancies between the 2013 data and the MWR data.

[2] Vegetable/strawberry crop shown on figures is lumped with the Vegetable Category in proceeding tables.

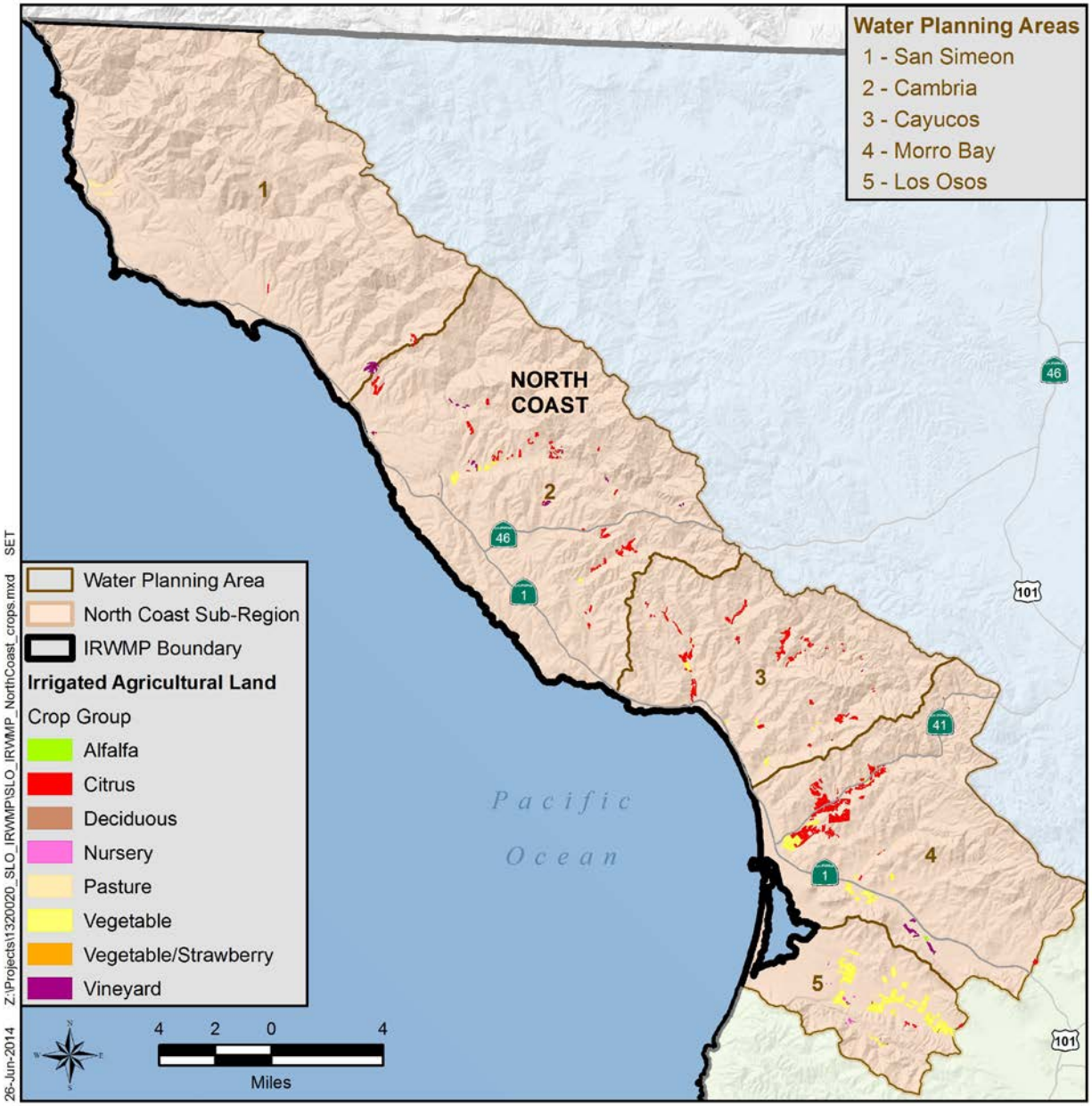


Figure J-2. North Coast Agriculture (Existing)

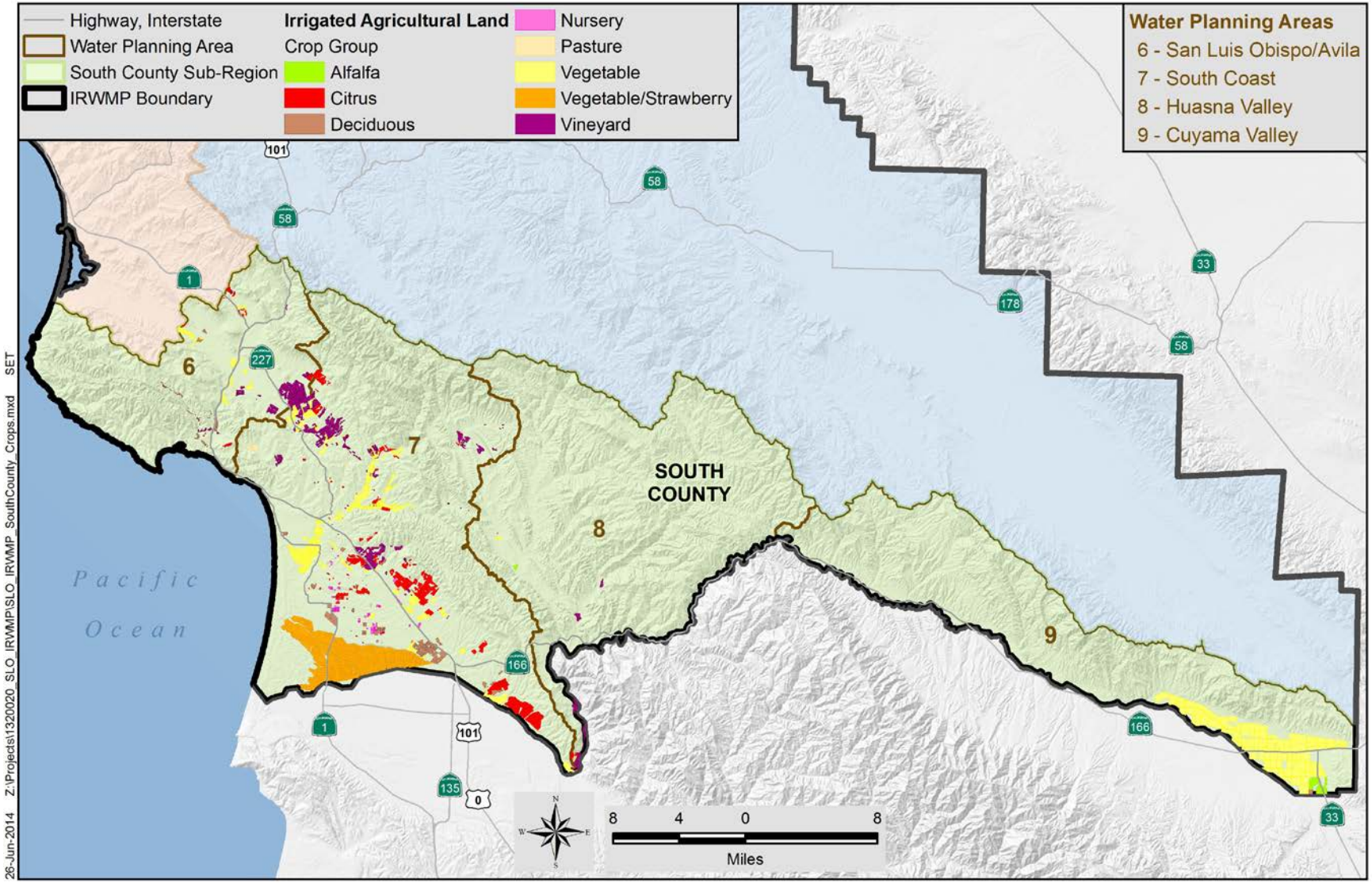


Figure J-3. South County Agriculture (Existing)

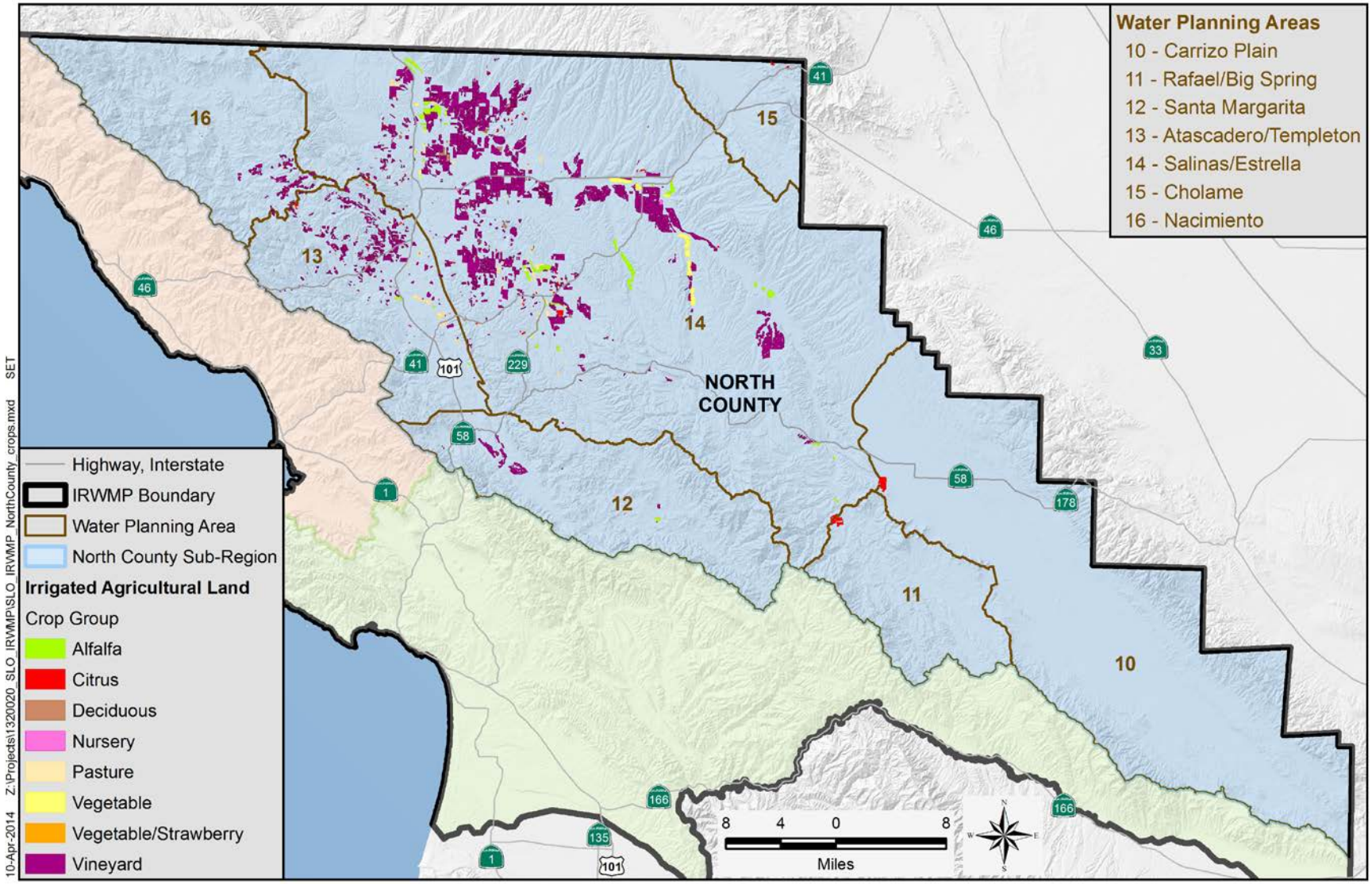


Figure J-4. North County Agriculture (Existing)

Table J-5. Existing (2013) Irrigated Acreage Totals by WPA

WPA Label	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard	Grand Total
1 San Simeon	0	24	2	0	134	0	43	203
2 Cambria	0	362	6	0	11	94	83	556
3 Cayucos	0	440	0	0	1	63	3	508
4 Morro Bay	10	821	3	0	6	333	76	1,249
5 Los Osos	0	22	6	16	12	966	2	1,024
6 San Luis Obispo/Avila	0	242	225	0	76	560	1,248	2,352
7 South Coast	0	4,141	1,441	327	206	13,811	2,681	22,607
8 Huasna Valley	36	62	3	0	3	48	418	569
9 Cuyama Valley	433	0	39	0	0	9,986	0	10,457
10 Carrizo Plain	0	163	0	0	0	0	0	163
11 Rafael/Big Spring	0	175	0	0	0	0	0	175
12 Santa Margarita	52	0	10	0	5	0	880	946
13 Atascadero/Templeton	82	86	14	13	387	18	4,057	4,657
14 Salinas/Estrella	2,336	518	446	60	836	1,255	32,723	38,175
15 Cholame	0	37	0	0	0	0	0	37
16 Nacimiento	0	15	3	0	0	0	1,223	1,240
Total for Crop Categories	**2,949**	**7,108**	**2,196**	**416**	**1,679**	**27,134**	**43,437**	**84,919**

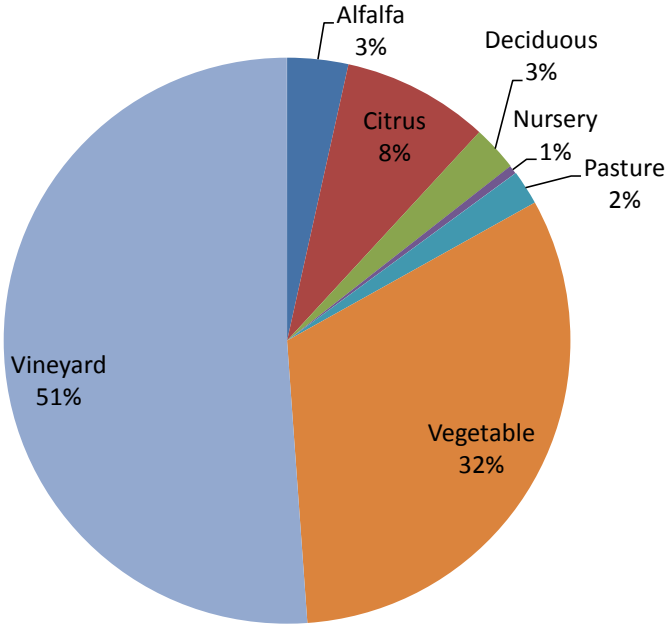


Figure J-5. Pie Chart of Crop Categories

In some areas, crop areas increase, especially as vineyards are being introduced in many areas not irrigated in the past. In other areas, a reduction in irrigated area occurs because of urban development; initially fallowing agricultural land, and then developing over time. The exact timing of both cases is not known and can only be estimated based on the current planning environment for agriculture and urban development in San Luis Obispo County.

J.3 Estimated Water Demands

The calculation of existing water demands is a matter of multiplying the above acreages by the water demand factors in **Table J-2**. This results in the demand values in **Table J-6**.

Table J-6. Existing (2013) Existing Agricultural Demands by WPA (AF/year)

WPA Label	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard	Grand Total
1 San Simeon	0	20	2	0	286	0	16	325
2 Cambria	0	311	8	0	23	148	31	521
3 Cayucos	0	441	0	0	3	101	2	547
4 Morro Bay	27	1,196	6	0	19	613	62	1,923
5 Los Osos	0	33	11	26	35	1,781	2	1,887
6 San Luis Obispo/Avila	0	359	475	0	235	1,114	1,012	3,194
7 South Coast	0	7,614	4,701	655	725	29,263	2,788	45,746
8 Huasna Valley	202	183	13	0	18	135	907	1,457
9 Cuyama Valley	2,428	0	172	0	0	28,114	0	30,714
10 Carrizo Plain	0	523	0	0	0	0	0	523
11 Rafael/Big Spring	0	519	0	0	0	0	0	519
12 Santa Margarita	200	0	29	0	21	0	1,248	1,499
13 Atascadero/Templeton	319	156	44	25	1,518	34	5,756	7,852
14 Salinas/Estrella	10,560	1,190	1,585	147	3,815	2,878	56,464	76,640
15 Cholame	0	108	0	0	0	0	0	108
16 Nacimiento	0	27	8	0	0	0	1,735	1,769
Total for Crop Categories	**13,735**	**12,680**	**7,052**	**853**	**6,699**	**64,183**	**70,022**	**175,223**

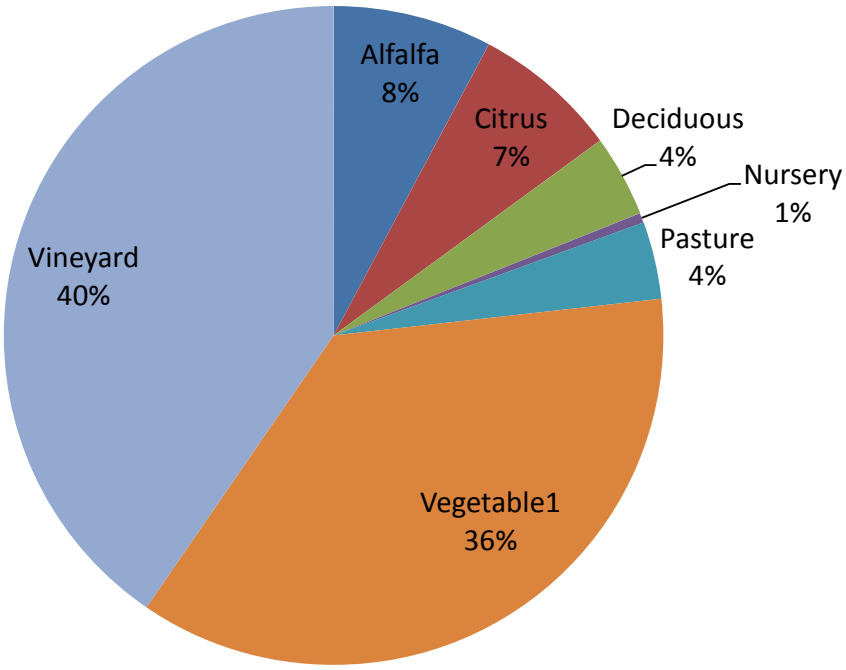


Figure J-6. Pie Chart of Existing Crop Demands

The total water demand of 175,000 AF/year is used as the total water demand and supply requirement for agriculture in the IRWM Region. In order to get to a future water demand in 5 year intervals, the demand values from the MWR are initially used and are listed in **Table J-7**.

Table J-7. Future (2035) Agricultural Demands by WPA from Master Water Report (AF/Year)

WPA Label	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard	Grand Total
1 San Simeon	0	16	0	0	0	0	23	**39**
2 Cambria	0	329	36	1	0	582	166	**1,115**
3 Cayucos	0	448	0	0	0	163	6	**617**
4 Morro Bay	0	986	0	0	93	912	74	**2,066**
5 Los Osos	0	29	7	155	1,347	1,720	1	**3,258**
6 San Luis Obispo/Avila	0	311	361	62	598	1,715	420	**3,467**
7 South Coast	0	6,981	138	388	2,297	6,715	3,703	**20,221**
8 Huasna Valley	0	54	20	11	520	432	1,405	**2,441**
9 Cuyama Valley	0	0	2,728	0	0	25,654	441	**28,823**
10 Carrizo Plain	0	772	5	0	0	8	0	**784**
11 Rafael/Big Spring	0	0	0	0	0	0	0	**0**
12 Santa Margarita	55	7	25	0	353	0	1,762	**2,202**
13 Atascadero/Templeton	0	94	2,261	151	3,027	87	6,551	**12,170**
14 Salinas/Estrella	3,436	839	2,996	183	8,167	4,665	53,495	**73,781**
15 Cholame	0	73	0	0	0	0	0	**73**
16 Nacimiento	0	83	2,459	0	37	0	3,350	**5,928**
Total for Crop Categories	**3,491**	**11,020**	**11,033**	**951**	**16,441**	**42,652**	**71,397**	**156,985**

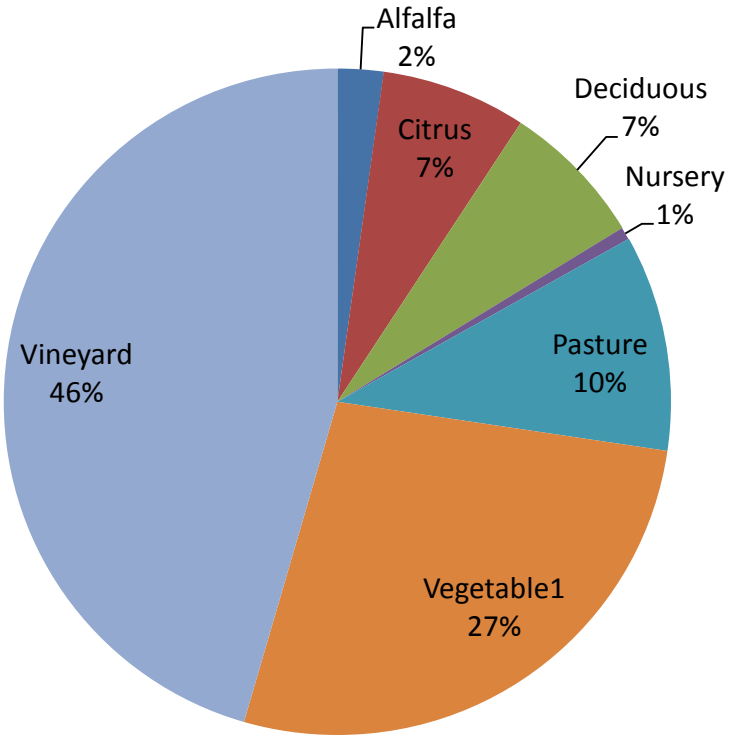


Figure J-7. Pie Chart of Future Crop Demands

The 10% reduction in agricultural water demand is shown to be a result of decreases in WPA demands for South Coast, and to a lesser extent, the Cuyama and Salinas Valleys, as illustrated in **Figure J-8**.

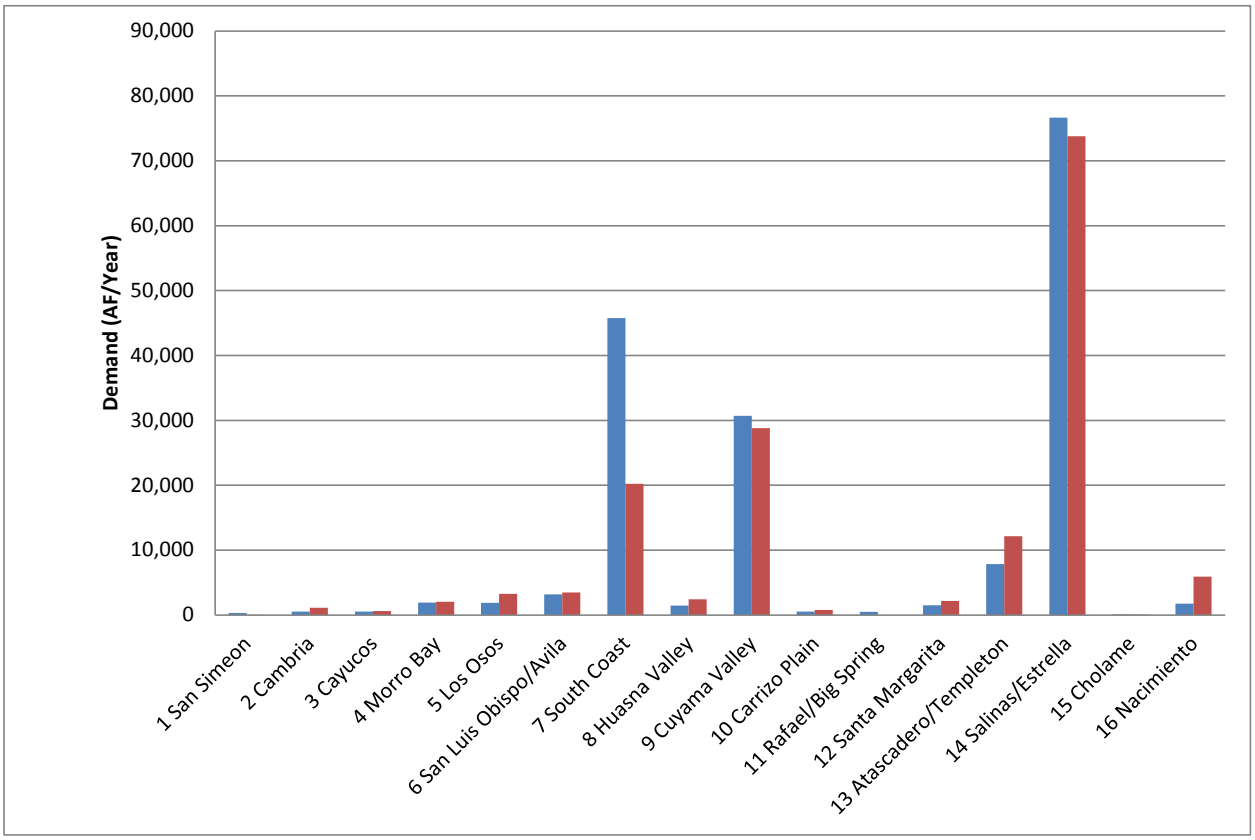


Figure J-8. Comparison Between Existing and Future Demands by WPA

Problematic to the calculation of showing changes on an individual WPA basis is the resulting discrepancies between the MWR and the updated 2013 irrigated agricultural inventory completed by the County. A good example is WPA 5 Los Osos where Pasture goes from 35 AF/year acres to 1,347 AF/year. The existing demand for Pasture in the MWR is calculated as 1,451 AF/year, making the future projected demand consistent with latter value above.

To account for the discrepancies, the rationale taken considered the overall change in demand for the WPA and adjusted the existing updated demands up (or down) by the same percentage (for each WPA's change) to result in the total future demand published in the MWR (see **Table J-8**). This approach is based on the premise that the crop categories in the MWR were likely placed in a different category, but the resulting demands were accepted by the individual stakeholders.

Table J-8. Future (2035) Agricultural Demands by WPA (AF/Year)

WPA Label	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard	Grand Total
1 San Simeon	0	16	0	0	0	0	23	**39**
2 Cambria	0	329	36	1	0	582	166	**1,115**
3 Cayucos	0	448	0	0	0	163	6	**617**
4 Morro Bay	0	986	0	0	93	912	74	**2,066**
5 Los Osos	0	29	7	155	1,347	1,720	1	**3,258**
6 San Luis Obispo/Avila	0	311	361	62	598	1,715	420	**3,467**
7 South Coast	0	6,981	138	388	2,297	6,715	3,703	**20,221**
8 Huasna Valley	0	54	20	11	520	432	1,405	**2,441**
9 Cuyama Valley	0	0	2,728	0	0	25,654	441	**28,823**
10 Carrizo Plain	0	772	5	0	0	8	0	**784**
11 Rafael/Big Spring	0	0	0	0	0	0	0	**0**
12 Santa Margarita	55	7	25	0	353	0	1,762	**2,202**
13 Atascadero/Templeton	0	94	2,261	151	3,027	87	6,551	**12,170**
14 Salinas/Estrella	3,436	839	2,996	183	8,167	4,665	53,495	**73,781**
15 Cholame	0	73	0	0	0	0	0	**73**
16 Nacimiento	0	83	2,459	0	37	0	3,350	**5,928**
Total for Crop Categories	**3,491**	**11,020**	**11,033**	**951**	**16,441**	**42,652**	**71,397**	**156,985**

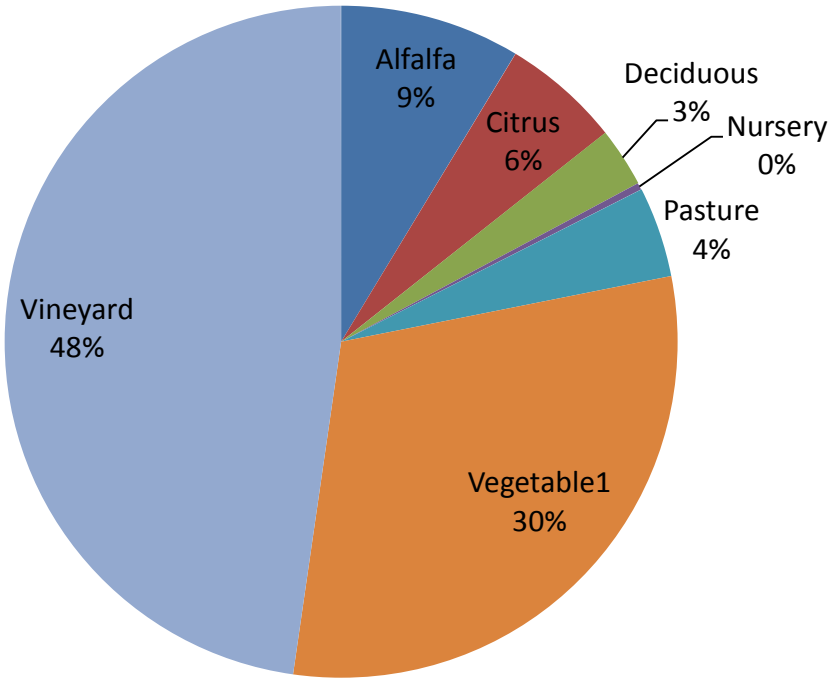


Figure J-9. Pie Chart of Adjusted Future Crop Demands

Unfortunately, the above methodology does not allow for a mapping of where the changes are (or will) be taking place, only that the demands of existing areas are going up or down based on the changes for the overall WPA. With the demand values in **Table J-8**, the next step is a straight line interpolation to transition the change in estimated demand for each crop across the period from 2010 to 2035. The year 2010 is used as a surrogate for 2013, assuming that significant agricultural changes did not occur in the intervening years.

The interpolation is provided in **Table J-9** with the totals at the bottom approximating the totals from the above tables. This table becomes the database table for use in the presentation of agricultural demands for each WPA. The graphical depiction of this data is presented in **Section D – Water Supply Demand and Budget** of the IRWM Plan.

Table J-9. Interpolation of Crop Categories for Database

WPA	Crop	2010	2015	2020	2025	2030	2035
1	Alfalfa	-	-	-	-	-	-
1	Citrus	20.43	16.83	13.23	9.63	6.04	2.44
1	Deciduous	2.38	1.96	1.54	1.12	0.70	0.28
1	Nursery	-	-	-	-	-	-
1	Pasture	286.46	236.01	185.55	135.09	84.63	34.18
1	Vegetable1	-	-	-	-	-	-
1	Vineyard	16.06	13.23	10.40	7.57	4.74	1.92
2	Alfalfa	-	-	-	-	-	-
2	Citrus	310.96	381.90	452.83	523.77	594.71	665.65
2	Deciduous	7.57	9.30	11.02	12.75	14.48	16.20
2	Nursery	-	-	-	-	-	-
2	Pasture	23.35	28.67	34.00	39.32	44.65	49.98
2	Vegetable1	148.01	181.78	215.54	249.31	283.08	316.84
2	Vineyard	30.83	37.86	44.89	51.92	58.96	65.99
3	Alfalfa	-	-	-	-	-	-
3	Citrus	441.37	452.74	464.10	475.47	486.83	498.20
3	Deciduous	-	-	-	-	-	-
3	Nursery	-	-	-	-	-	-
3	Pasture	2.58	2.64	2.71	2.78	2.84	2.91
3	Vegetable1	101.02	103.62	106.22	108.82	111.42	114.03
3	Vineyard	1.66	1.70	1.75	1.79	1.83	1.87

WPA	Crop	2010	2015	2020	2025	2030	2035
4	Alfalfa	27.32	27.72	28.13	28.53	28.94	29.34
4	Citrus	1,195.60	1,213.34	1,231.08	1,248.83	1,266.57	1,284.31
4	Deciduous	6.30	6.39	6.49	6.58	6.67	6.77
4	Nursery	-	-	-	-	-	-
4	Pasture	18.69	18.96	19.24	19.52	19.80	20.07
4	Vegetable1	613.47	622.58	631.68	640.78	649.89	658.99
4	Vineyard	61.65	62.57	63.48	64.40	65.31	66.23
5	Alfalfa	-	-	-	-	-	-
5	Citrus	32.56	37.29	42.02	46.76	51.49	56.22
5	Deciduous	11.13	12.75	14.37	15.99	17.60	19.22
5	Nursery	25.73	29.48	33.22	36.96	40.70	44.44
5	Pasture	34.73	39.78	44.83	49.87	54.92	59.97
5	Vegetable1	1,781.32	2,040.24	2,299.16	2,558.08	2,817.01	3,075.93
5	Vineyard	1.58	1.80	2.03	2.26	2.49	2.72
6	Alfalfa	-	-	-	-	-	-
6	Citrus	358.85	364.97	371.08	377.20	383.32	389.43
6	Deciduous	474.54	482.63	490.71	498.80	506.89	514.98
6	Nursery	-	-	-	-	-	-
6	Pasture	235.32	239.33	243.34	247.35	251.37	255.38
6	Vegetable1	1,113.90	1,132.88	1,151.87	1,170.85	1,189.84	1,208.83
6	Vineyard	1,011.84	1,029.09	1,046.34	1,063.58	1,080.83	1,098.08
7	Alfalfa	-	-	-	-	-	-
7	Citrus	7,614.30	6,764.61	5,914.92	5,065.23	4,215.54	3,365.84
7	Deciduous	4,700.50	4,175.96	3,651.43	3,126.89	2,602.36	2,077.82
7	Nursery	654.56	581.51	508.47	435.43	362.38	289.34
7	Pasture	725.32	644.38	563.44	482.50	401.56	320.62
7	Vegetable1	29,263.23	25,997.70	22,732.17	19,466.64	16,201.12	12,935.59
7	Vineyard	2,787.67	2,476.59	2,165.51	1,854.43	1,543.35	1,232.27
8	Alfalfa	201.87	229.15	256.43	283.70	310.98	338.26
8	Citrus	182.84	207.54	232.25	256.96	281.67	306.38
8	Deciduous	12.59	14.30	16.00	17.70	19.40	21.11

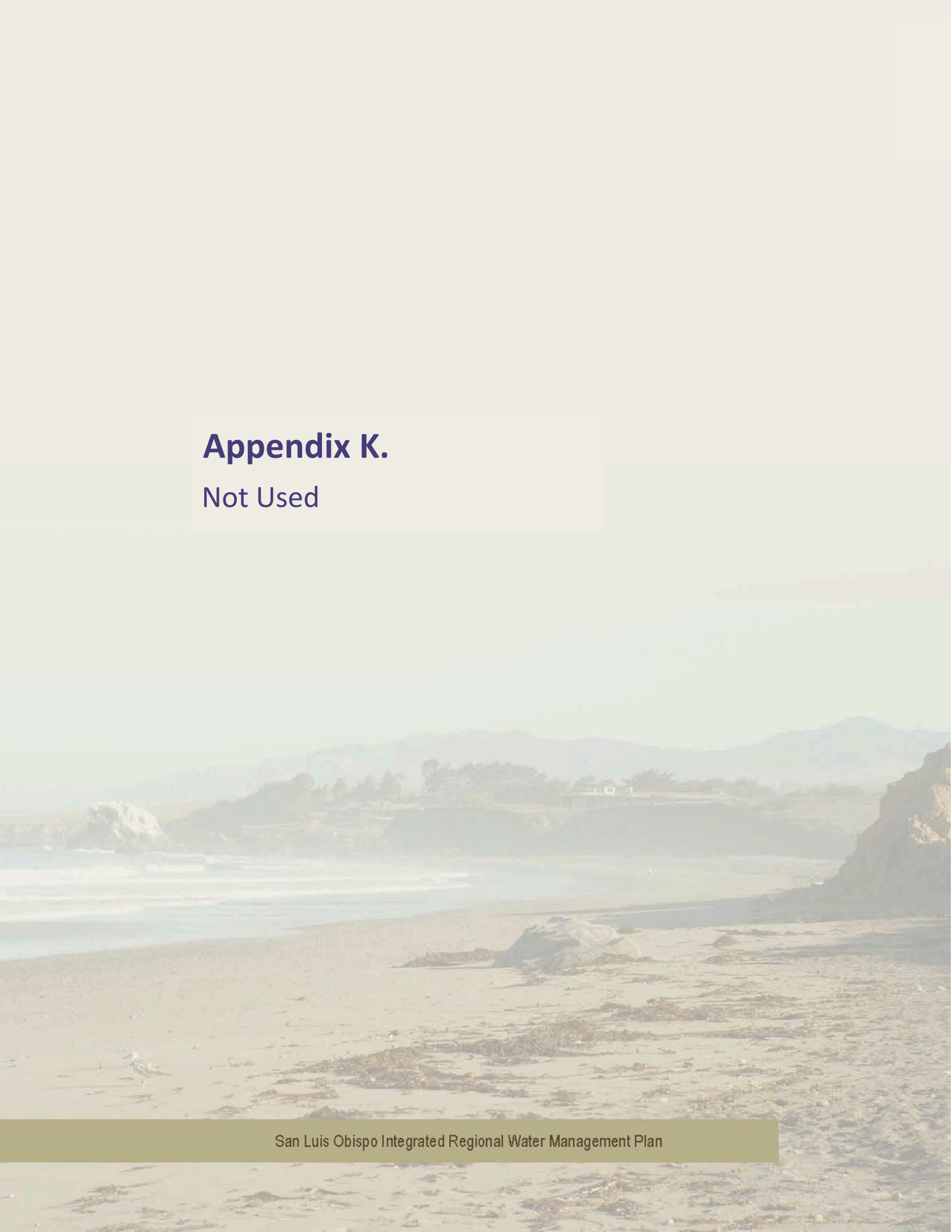
WPA	Crop	2010	2015	2020	2025	2030	2035
8	Nursery	-	-	-	-	-	-
8	Pasture	17.68	20.07	22.46	24.85	27.24	29.63
8	Vegetable1	134.54	152.72	170.90	189.09	207.27	225.45
8	Vineyard	907.13	1,029.71	1,152.30	1,274.89	1,397.47	1,520.06
9	Alfalfa	2,427.67	2,397.78	2,367.88	2,337.99	2,308.10	2,278.20
9	Citrus	-	-	-	-	-	-
9	Deciduous	171.66	169.55	167.43	165.32	163.20	161.09
9	Nursery	-	-	-	-	-	-
9	Pasture	-	-	-	-	-	-
9	Vegetable1	28,114.46	27,768.27	27,422.08	27,075.89	26,729.69	26,383.50
9	Vineyard	-	-	-	-	-	-
10	Alfalfa	-	-	-	-	-	-
10	Citrus	522.57	574.88	627.19	679.50	731.81	784.12
10	Deciduous	-	-	-	-	-	-
10	Nursery	-	-	-	-	-	-
10	Pasture	-	-	-	-	-	-
10	Vegetable1	-	-	-	-	-	-
10	Vineyard	-	-	-	-	-	-
11	Alfalfa	-	-	-	-	-	-
11	Citrus	519.26	415.41	311.55	207.70	103.85	-
11	Deciduous	-	-	-	-	-	-
11	Nursery	-	-	-	-	-	-
11	Pasture	-	-	-	-	-	-
11	Vegetable1	-	-	-	-	-	-
11	Vineyard	-	-	-	-	-	-
12	Alfalfa	200.13	218.91	237.69	256.48	275.26	294.04
12	Citrus	-	-	-	-	-	-
12	Deciduous	28.99	31.71	34.43	37.15	39.87	42.60
12	Nursery	-	-	-	-	-	-
12	Pasture	21.17	23.16	25.15	27.13	29.12	31.11
12	Vegetable1	-	-	-	-	-	-
12	Vineyard	1,248.42	1,365.59	1,482.76	1,599.94	1,717.11	1,834.28

WPA	Crop	2010	2015	2020	2025	2030	2035
13	Alfalfa	318.61	353.66	388.70	423.75	458.79	493.84
13	Citrus	155.75	172.89	190.02	207.15	224.28	241.42
13	Deciduous	43.59	48.38	53.17	57.97	62.76	67.56
13	Nursery	25.40	28.20	30.99	33.78	36.58	39.37
13	Pasture	1,518.12	1,685.11	1,852.10	2,019.08	2,186.07	2,353.06
13	Vegetable1	34.50	38.29	42.08	45.88	49.67	53.47
13	Vineyard	5,755.87	6,389.00	7,022.13	7,655.26	8,288.39	8,921.52
14	Alfalfa	10,559.68	10,480.91	10,402.13	10,323.35	10,244.58	10,165.80
14	Citrus	1,190.42	1,181.54	1,172.66	1,163.78	1,154.90	1,146.02
14	Deciduous	1,585.03	1,573.20	1,561.38	1,549.55	1,537.73	1,525.90
14	Nursery	147.07	145.98	144.88	143.78	142.68	141.59
14	Pasture	3,815.11	3,786.65	3,758.19	3,729.73	3,701.27	3,672.81
14	Vegetable1	2,878.11	2,856.64	2,835.17	2,813.70	2,792.23	2,770.76
14	Vineyard	56,464.36	56,043.13	55,621.90	55,200.67	54,779.44	54,358.21
15	Alfalfa	-	-	-	-	-	-
15	Citrus	108.36	101.27	94.18	87.08	79.99	72.90
15	Deciduous	-	-	-	-	-	-
15	Nursery	-	-	-	-	-	-
15	Pasture	-	-	-	-	-	-
15	Vegetable1	-	-	-	-	-	-
15	Vineyard	-	-	-	-	-	-
16	Alfalfa	-	-	-	-	-	-
16	Citrus	26.95	39.62	52.29	64.96	77.63	90.30
16	Deciduous	7.84	11.53	15.21	18.90	22.58	26.27
16	Nursery	-	-	-	-	-	-
16	Pasture	-	-	-	-	-	-
16	Vegetable1	-	-	-	-	-	-
16	Vineyard	1,734.62	2,550.03	3,365.45	4,180.86	4,996.27	5,811.68
Totals		**175,200.36**	**171,556.78**	**167,913.20**	**164,269.61**	**160,626.03**	**156,982.45**

San Luis Obispo Integrated Regional Water Management Plan

Appendix K.

Not Used



Appendix L

San Luis Obispo County Groundwater Basins

Appendix L. San Luis Obispo County Groundwater Basins

The description of each groundwater basin and sub-basin contained within this appendix is a compilation of many works from prior studies and reports. In many cases, the best available information is used with a careful understanding of the approximate nature of the information and the need to update the data to a more current understanding under controlled conditions.

This Appendix is organized by WPA and Groundwater Basin and Sub-Basin. See **Figure L-1** for location of groundwater basins in the IRWM Planning Region. Each Sub-Region will have a similar map showing smaller Sub-Basins where applicable.

L.1 NORTH COAST GROUNDWATER BASINS

See **Figure L-2** for location of North Coast Sub-Region Groundwater Basins and Sub-Basins.

1. San Carpoforo Valley Groundwater Basin

The San Carpoforo Valley Groundwater Basin is located in WPA 1 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-33 (DWR 2003). The basin underlies the San Carpoforo Valley, is 200 acres (0.3 square miles) in size, and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in San Carpoforo Creek and to a lesser extent percolation of precipitation and irrigation return flows. The groundwater storage capacity is estimated as 1,800 acre-feet (AF). There are no current estimates of actual groundwater in terms of in-storage volumes. The volume of in-storage groundwater likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. There are neither estimates of basin yield, nor is their information available describing water quality in the basin. The primary constraints on water availability in the basin include physical limitations in storage volume and recharge and potential water quality issues, including salinity intrusion from the Pacific Ocean.

As discussed above, groundwater levels in this basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from CDWR and other private sources.

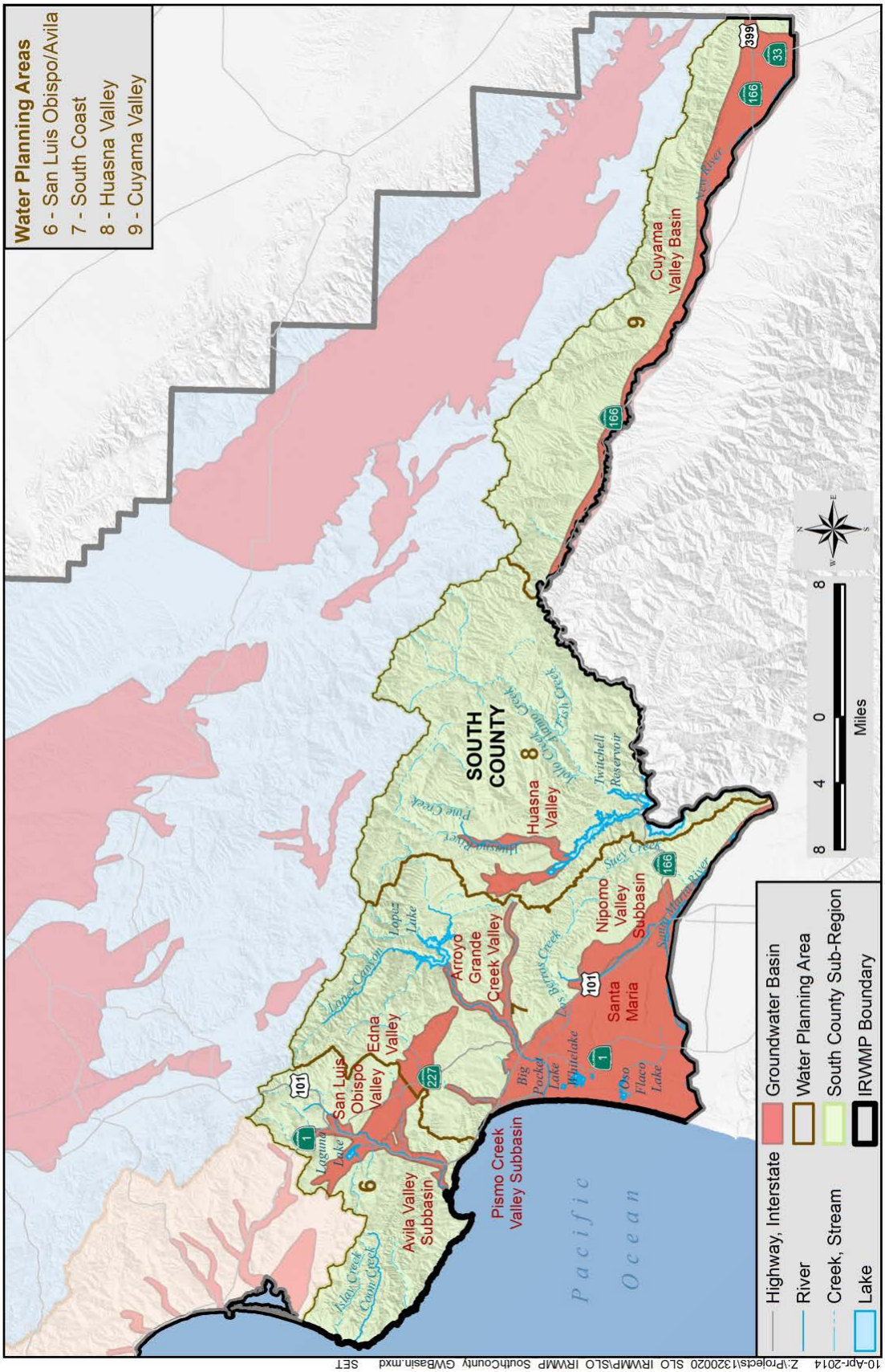


Figure L-1. Entire IRWM Planning Region Groundwater Basin Map

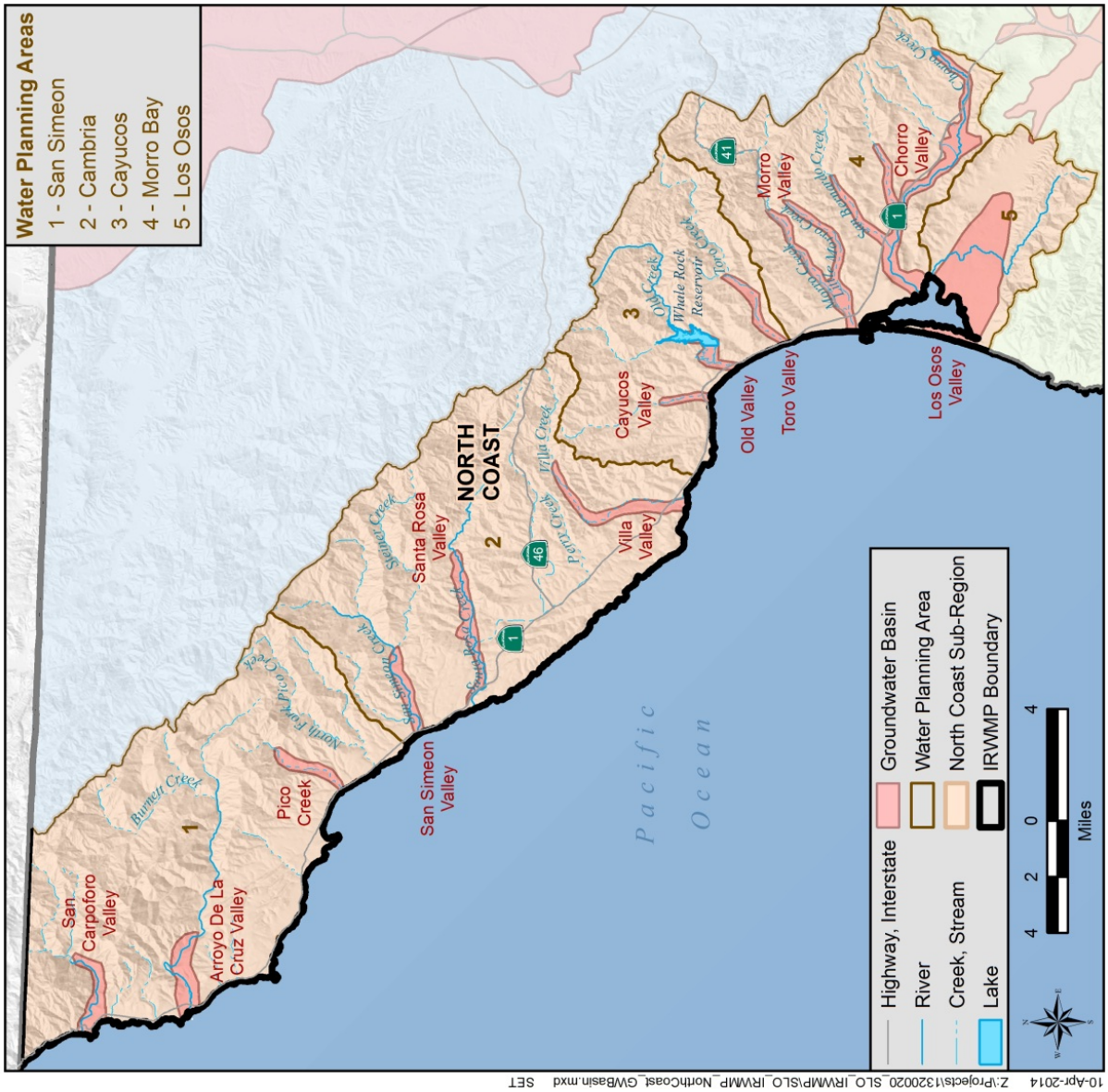


Figure L-2. North Coast Groundwater Basins

2. Arroyo De La Cruz Valley Groundwater Basin

The Arroyo De La Cruz Valley Groundwater Basin is located in WPA 1 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-34 (DWR 2003). The basin is 750 acres (1.2 square miles) in size and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from percolation of surface flows in Arroyo de la Cruz, deep percolation of precipitation, and agricultural irrigation return flows. The groundwater storage capacity is estimated as 6,600 AF; however, the actual amount of useable groundwater storage is currently unknown. The volume of groundwater basin storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions for agriculture during the irrigation season. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying private pumpers for rural uses. The safe yield of the basin is estimated to be 1,244 AFY (Envicom, 1982). Groundwater samples taken from four wells from 1957 to 1985 show total dissolved solids concentration ranging from 211 to 381 mg/L.

The primary constraints on water availability in the basin include physical limitations and potential water quality issues from applied fertilizers and pesticides, small ranch properties and salinity intrusion. Groundwater levels in the basin are likely highest during the wet season, steadily declining from these levels during the dry season, and recover again to higher levels during the next wet season.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from CDWR and private well sources.

3. Pico Creek Valley Groundwater Basin

The Pico Creek Valley Groundwater Basin is located in WPA 1 of the North Coast Sub-Region. This basin is not formally defined under California's Groundwater Bulletin 118 program. The basin is 62.5 acres (about one-tenth of a square mile) in size and underlies Pico Creek Valley (Cleath, 1986). The basin is bounded by the Pacific Ocean to the west and extends inland about 7,000 feet under the stream channel and floodplain of the Pico Creek. From the Pacific Ocean to about 1,200 feet inland, the basin is undeveloped. The Hearst Ranch is located from 1,200 feet inland to about 4,000 feet inland.

The main water-bearing unit in the basin is the Pico Creek alluvium (Cleath, 1986). Recharge to the basin comes primarily from seepage of surface flows in Pico Creek and deep percolation of precipitation. Historically, the creek flows during the winter months and does not flow during the summer months. The alluvium between the ocean and Hearst Ranch is divided into a shallow and a deep aquifer, where the two aquifers are separated by a clay

zone that acts as an aquitard. The clay zone is not present upstream of the Hearst Ranch and the alluvium eastward from there forms a single aquifer.

The basin contains groundwater stored both above sea level and below sea level. The available groundwater in storage above sea level is about 40 AF (Cleath, 1986). Much of the groundwater in storage below sea level has experienced sea water intrusion and is of lesser water quality. The available groundwater in storage below sea level is less than 50 AF.

Water users in the basin include the San Simeon Community Services District (San Simeon CSD) and Hearst Ranch. The basin yield is estimated to be 120 AFY (Cleath, 1986). Contamination of water supply wells due to seawater intrusion and tidal influences is a major water quality concern in the basin (Cleath, 1986). Lowering of groundwater levels below sea level in the basin during the summer months when creek flows are absent and pumping is active can result in the landward migration of the sea water/fresh groundwater interface. Since at least the mid-1980s, sea water intrusion has occurred within the Pico Creek Valley Groundwater Basin (Cleath, 1986). Although seawater intrusion has increased salinity levels in groundwater pumped from local water supply wells, it has not degraded water quality to the point that the water is non-potable. The 2008 Consumer Confidence Report for two San Simeon CSD wells reported that measured concentrations of all analyzed contaminants were below their respective Maximum Contaminant Level (MCL) or Regulatory Action Level (AL) values.

The primary constraints on water availability in the basin include physical limitations and potential water quality issues. Currently the water supply of San Simeon CSD is at a certified Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (SLO County, 2008). As a result, a moratorium on development has been in place since 1991.

4. San Simeon Valley Groundwater Basin

The San Simeon Valley Groundwater Basin is located in the WPA 2 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-35 (DWR 2003). The basin underlies San Simeon Valley and is 620 acres (approx. 1 square mile) in size, and is bounded by the Pacific Ocean, the Santa Lucia Range, and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in San Simeon and Van Gordon creeks, deep percolation of precipitation, and agricultural irrigation return flows.

Groundwater is found in alluvial deposits underlying San Simeon Creek (DWR 2003). The alluvium's thickness varies from about 100 feet beneath the center of the valley to more than 120 feet at the coast (Yates and Van Konyenburg, 1998). The groundwater storage capacity is estimated as 4,000 AF; however the actual amount in groundwater storage is unknown (DWR 2003). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

Water users in the basin include the Cambria Community Services District (Cambria CSD) and overlying users. The safe yield of the basin was estimated to be 1,040 AFY (Cambria County Water District, 1976). Groundwater samples from 31 wells collected from 1955 to 1994 show total dissolved solids (TDS) concentration ranging from 46 to 2,210 mg/L (DWR 2003). Samples from three public supply wells show a TDS concentration range of 400 to 420 mg/L with an average concentration of 413 mg/L. Manganese concentrations in the downstream regions of the basin have exceeded the MCL, with a range of 0.002 to 1.6 mg/L (Yates and Van Konyenburg, 1998).

The 2007 Consumer Confidence Report for Cambria CSD reported that measured concentrations of all analyzed contaminants were below their respective MCL or Regulatory AL values. In particular, the measured TDS concentration was 440 mg/L. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Water Resources Control Board (State Board) allows a maximum extraction of 1,230 AFY in the San Simeon Valley Groundwater Basin and a maximum dry season extraction of 370 AF (Cambria CSD Water Master Plan (WMP), 2008). Although the actual dates will vary each year depending on creek flows and rainfall occurrence, the dry season generally spans from May through October. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season.

Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (Cambria CSD WMP, 2008). As a result, Cambria CSD is constantly challenged to meet demands through water conservation, proper well location, and groundwater treatment. New growth is constrained due to the lack of sustainability in water supplies.

5. Santa Rosa Valley Groundwater Basin

The Santa Rosa Valley Groundwater Basin is located in WPA 2 of the North Coast Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-36 (DWR 2003). The basin underlies the Santa Rosa Valley, is 4,480 acres (7 square miles) in size, and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in Santa Rosa Creek and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

According to Bulletin 118, the main water-bearing unit in the basin is unconfined alluvium (DWR 2003). The groundwater storage capacity of the basin has been estimated as 24,700 AF (DWR 1975). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions. The actual amount of groundwater in storage is unknown.

Water users in the basin include the Cambria CSD and overlying users. The safe yield of the basin has been estimated to be 2,260 AFY (Cambria County Water District, 1976). Groundwater sampled from one public supply well had a total dissolved solids concentration

of 680 mg/L. Increases in measured groundwater chloride concentration suggest the possibility of seawater intrusion into the basin (DWR 1975). From 1955 to 1975, measured chloride concentration increased from 80 mg/L to 933 mg/L (DWR 1975), where background chloride concentration typically range from 30 to 270 mg/L (Yates and Van Konyenburg, 1998).

The Cambria CSD's Urban Water Management Plan (UWMP) (Cambria CSD, 2005) noted the existence of an MTBE plume moving towards its Santa Rosa well field. The UWMP also noted that although the plume was still present at the time the UWMP was prepared, Cambria CSD was taking action to remove the MTBE from the groundwater through a remediation program.

The primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Board allows a maximum extraction of 518 AFY in the Santa Rosa Valley Groundwater Basin and a maximum dry season extraction of 260 AF (Cambria CSD WMP, 2008). The California Coastal Commission Coastal Development Permit defines the Santa Rosa Creek dry period as July 1 to November 20. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (Cambria CSD WMP, 2008).

6. Villa Valley Groundwater Basin

The Villa Valley Groundwater Basin is located in WPA 2 in the North Coast Sub-Region and encompasses approximately 980 acres (approx. 1.5 square miles). The basin is bounded by the Pacific Ocean and by relatively impermeable rocks. This basin has been designated by the DWR as Basin 3-37 (DWR 2003). Recharge to the basin comes primarily from seepage of surface flows in Villa Creek, deep percolation of precipitation, and residential/agricultural return flows.

The aquifer consists of alluvial deposits that are up to approximately 50 feet thick. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural and residential purposes by overlying users. The projected safe seasonal yield of the Villa Valley Groundwater Basin was historically estimated at 1,000 AFY (DWR 1958). There has been no subsequent basin study to confirm or update this estimate.

Seawater intrusion has been reported historically in the lower portion of the basin (DWR 1975). Upstream of sea water influence, the TDS concentration averaged 500 mg/L in samples collected from three wells between 1965 and 1970 (based on data extracted from STORET Legacy Database).

Constraints on water availability in this basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts. For

the upper Villa Valley, water level and well capacity declines during drought limit the availability of the resource, while in the lower valley area; sea water intrusion is the primary constraint.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for the Villa Valley Groundwater Basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful for these studies. Additional information may be available from the DWR and private well user sources.

7. Cayucos Valley Groundwater Basin

The Cayucos Valley Groundwater Basin is located in WPA 3 in the North Coast Sub-Region and encompasses approximately 580 acres (approx. 0.9 square miles). The basin is bounded by the Pacific Ocean and by relatively non-water bearing rock units (Cleath, T. S., 1988). This basin has been designated by the DWR as Basin 3-38. Recharge to the basin comes primarily from seepage of surface flows in Cayucos Creek, deep percolation of precipitation, and residential/agricultural return flows.

Basin groundwater users include a small public water system (mobile home park) and overlying residential and agricultural users. The Morro Rock Mutual Water Company and Paso Robles Beach Water Association service areas overlie a portion of the basin; however, these purveyors do not pump from the Cayucos Valley basin.

The water supply aquifer is within the alluvial deposits of Cayucos Creek, which are comprised of gravel, sand, silt and clay. These alluvial deposits extend up to an estimated 80 feet thick, and are at least 68 feet thick at a distance of one mile inland from the coast (Cleath, T. S., 1988). The projected safe seasonal yield of the Cayucos Valley Groundwater Basin was historically estimated at 600 AFY (DWR 1958). There has been no subsequent basin-wide studies to confirm or update this estimate. Estimated production from the basin was 350 AFY in 1987 (Cleath, T. S., 1988).

There is evidence of sea water intrusion in the basin extending to the mobile home park wells and ranch wells immediately upstream of Highway 1. The TDS concentration of groundwater upstream of the sea water influence is close to 500 mg/L (Cleath, T. S., 1988).

Constraints on water availability in this basin include both physical limitations and water quality issues. Water level and well capacity declines during drought limit the availability of the resource, while in the lower valley area; sea water intrusion is the primary constraint.

Some of the published hydrogeologic information for the Cayucos Valley Groundwater Basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or

water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private well sources.

8. Old Valley Groundwater Basin

The Old Valley Groundwater Basin is in WPA 3 in the North Coast sub-region (see **Error! Reference source not found.** above) and encompasses approximately 750 acres (approx. 1.2 square miles). The basin is bounded by the Pacific Ocean and by relatively impermeable rocks. This basin, which includes Whale Rock Reservoir, was designated by the DWR as Basin 3-39. Basin recharge upstream of the reservoir comes primarily from deep percolation of precipitation and seepage from surface flows in Cottontail Creek and Old Creek. Below the dam, recharge includes dam underflow and seepage from reservoir releases.

Basin groundwater users downstream of Whale Rock reservoir include members of the Cayucos Area Water Organization (CAWO), which include Morro Rock Mutual Water Company (Morro Rock MWC), Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A), the Cayucos Cemetery District (CCD), and two landowners. The combined groundwater and Whale Rock Reservoir surface water allocation for CAWO in Old Valley is 600 AFY, distributed as follows:

- Morro Rock MWC: 170 AFY
- PRBWA: 222 AFY
- CSA 10A: 190 AFY (plus 25 AFY of San Luis Obispo's entitlement via exchange for Lake Nacimiento water)
- CCD: 18 AFY
- Downstream land owners: 64 AFY

CAWO agencies receive water directly from the reservoir via the treatment plant and transmission pipeline. Mainini Ranch and Ogle also receive entitlements to 64 AFY of Whale Rock Reservoir. Upstream of the reservoir are residential and agricultural overlying users. Whale Rock Reservoir water users, including the City of San Luis Obispo, Cal Poly, and the California Men's Colony, are discussed later in this section.

The water supply aquifer is within the alluvial deposits of Old Creek and upstream tributary valleys. These alluvial deposits extend up to an estimated 72 feet thick (Cleath & Associates, 1993, 1995). Production from wells in the lower Old Valley Groundwater Basin (below the reservoir) ranged from 389 to 603 AFY, with an average of 505 AFY between 1981 and 1992. The lower basin was estimated to have a yield capable of providing the entire 600 AFY CAWO allocation, although releases from the reservoir were necessary to protect against sea water intrusion (Cleath & Associates 1993, 1995). With direct deliveries of CAWO downstream entitlements to a water treatment plant beginning in 1997, re-evaluation of the yield in this part of the basin has not been a high priority. The TDS concentration of the groundwater below the reservoir averaged 440 mg/L in 2008 (CSA 10/10A, 2008).

Constraints on water availability in this basin include physical limitations, water rights, and environmental considerations. Shallow alluvial deposits upstream of the reservoir are

susceptible to drought impacts, having limited groundwater in storage. For the area below the reservoir, dam underflow may provide a source of recharge. Water agreements limit the amount of groundwater available to the members of CAWO and downstream landowners in Old Valley.

9. Toro Valley Groundwater Basin

The Toro Valley Groundwater Basin is in WPA 3 in the North Coast sub-region (see **Error! Reference source not found.** above) and encompasses approximately 510 acres (approx. 0.8 square miles). The basin is bounded by the Pacific Ocean and by generally non-water bearing rocks. This basin is designated by the DWR as Basin 3-40 (Cleath, T. S., 1988; DWR 2003). Basin recharge comes primarily from seepage of surface flows in Toro Creek, deep percolation of precipitation, and residential/agricultural return flows.

Basin water users include Chevron (with agricultural tenants), and overlying residential and agricultural users. The water supply aquifer is within the alluvial deposits drained by Toro Creek. These alluvial deposits extend up to an estimated 80 feet thick, and average approximately 50 feet thick in the lower portion of the basin (McClelland Engineers, 1988). The projected safe seasonal yield of the Toro Valley Groundwater Basin was historically estimated at 500 AFY (DWR 1958). Estimates of hydrologic budget items for 1987 conditions included 591 AFY of percolation of precipitation and 532 AFY of basin groundwater production. Given the shallow nature of alluvial deposits and limited groundwater basin storage, the safe yield estimate is limited to the documented historical production that has not resulted in water supply problems, which to date has been up to 532 AFY.

Water quality data for a well approximately 0.7 miles inland of the coast between 1954 and 1987 indicates mild sea water intrusion at this location in the basin, with chloride concentrations up to 129 mg/L. The TDS concentration typically ranges between 400 and 700 mg/L (STORET Legacy Database and DWR 2003). In the lower basin area near Highway 1, petroleum hydrocarbon contamination associated with the Chevron marine terminal has been detected in groundwater and remedial activities are ongoing (GeoTracker Database).

Constraints on water availability in this basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. For the upper basin, water level and well capacity declines during drought limit water availability, while in the lower valley area, sea water intrusion and petroleum hydrocarbon contamination are the primary constraints.

Some of the published hydrogeologic information for this groundwater basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies are recommended. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private well sources.

10. Morro Valley Groundwater Basin

The Morro Valley Groundwater Basin is in WPA 4 in the North Coast Sub-Region and encompasses approximately 1,200 acres (1.9 square miles). The basin is bounded by the Pacific Ocean, the Morro Bay estuary, and by impermeable rock units. This basin is designated by the DWR as Basin 3-41. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area southwest of the narrows near Highway 1 (DWR 2003). Recharge to the basin comes primarily from seepage of surface flows in Morro Creek and Little Morro Creek, deep percolation of precipitation, and residential/agricultural return flows. The water supply aquifers are predominantly within alluvial deposits drained by Morro Creek, which are comprised of gravel, sand, silt and clay. The alluvial deposits are typically up to 80 feet thick (Cleath & Associates, 2007).

Basin groundwater users include the City of Morro Bay, Morro Bay power plant, a cement plant, a small public water system (mobile home park), and residential and agricultural overlying users. The City of Morro Bay pumps sea water and Morro Creek underflow from the basin for use as recycled water, the latter with a permitted allocation of 581 AFY from the State Board.

The existing perennial yield of the Morro Valley Groundwater Basin is estimated at 1,500 AFY. Groundwater modeling performed to evaluate the impacts of sea water well operation on the basin indicated that concurrent operation of the City of Morro Bay's sea water and fresh water supply wells could interfere during drought conditions such that the fresh water wells would be subject to sea water intrusion (Cleath & Associates, 1993a; 1993b).

Sea water intrusion and nitrates are the predominant concerns for water quality in this basin. In the mid-1980's TDS concentrations in groundwater downstream of the narrows near Highway 1 began to exceed 1,000 mg/L seasonally due to sea water intrusion and tidal influences. More recently, basin TDS concentrations (measured in 2007) were typically between 400 and 800 mg/L and increasing toward the coast, except for an area beneath agricultural fields in the lower valley where TDS concentrations reached 1000 mg/L, and nitrate concentrations reached 220 mg/L as nitrate (Cleath & Associates 1993a; 2007). Primary constraints on water availability in this basin include physical limitations, water quality issues, and water rights. Shallow alluvial deposits are typically more susceptible to drought impacts. For the upper Morro Valley, water level and well capacity declines during drought would limit the availability of the resource, while in the lower valley area, sea water intrusion would be the primary constraint. Elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field, where appropriative water right permits from the State Board also limit production.

11. Chorro Valley Groundwater Basin

The Chorro Valley Groundwater Basin is in WPA 4 in the North Coast Sub-Region and encompasses approximately 3,200 acres (5 square miles), although the effective extent of saturated basin deposits covers an estimated 1,900 acres (approx. 3 square miles). The basin

is bounded by the Morro Bay estuary and elsewhere by impermeable rock units (Cleath-Harris Geologists, 2009). This basin is designated by the DWR as Basin 3-42. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area near the Morro Bay estuary. Recharge to the basin comes primarily from seepage of surface flows in Chorro Creek and tributaries (including wastewater treatment plant discharges and releases from Chorro Reservoir), deep percolation of precipitation, and residential/agricultural return flows. The water supply aquifers are alluvial deposits drained by Chorro Creek, which are comprised of gravel, sand, silt, and clay. These alluvial deposits are 50-70 feet thick downstream of Canet Road (Cleath-Harris Geologists, 2009).

Basin groundwater users include the City of Morro Bay, San Luis Obispo County, California State Parks, California State Polytechnic University, California National Guard, California Men's Colony, and residential and agricultural overlying users. The City of Morro Bay pumps Chorro Creek underflow from the basin and has appropriative rights to 1,142.5 AFY. Safe yield under drought conditions is estimated at 566 AFY through the State Board.

The perennial yield of the Chorro Valley basin is estimated for planning purposes at 2,210 AFY (Cleath & Associates, 1993a; DWR 1958). Nitrate concentrations are a concern for water quality in the lower portion of this basin. Sea water intrusion has been documented historically and is a potential future concern in the Chorro Flats area, should pumping patterns change significantly. Recent basin TDS concentrations (measured in 2008) are typically between 500 and 700 mg/L (DWR 1975; Cleath-Harris Geologists, 2009).

Constraints on groundwater availability in this basin include physical limitations, water quality issues, environmental demand, and water rights. In the Chorro Valley upstream of the Chorro Creek discharge point for the California Men's Colony wastewater treatment plant, water level and well capacity declines during drought continue to limit the availability of the resource. The wastewater plant discharges enter the basin as imported water sources, and therefore provide additional available water for basin wells and environmental demand below the discharge point. In the lower valley area, sea water intrusion is the primary constraint, especially during drought conditions. The elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field where production is also limited by appropriative water right permits from the State Board. These permits for underflow production by the City of Morro Bay have also been conditioned to require minimum surface flows in Chorro Creek for Steelhead habitat protection.

12. Los Osos Valley Groundwater Basin

The Los Osos Valley Groundwater Basin is part of the North Coast Sub-Region and encompasses approximately 6,400 acres (10 square miles), of which 3.3 square miles underlie the Morro Bay estuary and sandspits (i.e., sandy deposits built into landforms), and 6.7 square miles underlie the communities of Los Osos, Baywood Park, and the Los Osos Creek Valley. The basin is bounded by the Pacific Ocean, and elsewhere by relatively impermeable rocks. The southern basin boundary also runs parallel to the main strand of the Los Osos fault. This basin is designated by the DWR as Basin 3-8 (DWR, 2003; Cleath & Associates, 2005).

Freshwater recharge to the basin comes primarily from seepage of surface flows in Los Osos Creek, deep percolation of precipitation, and residential/agricultural return flows. Sea water intrusion is also a significant component of basin inflow under current conditions.

The basin is generally characterized as having five (5) zones. The upper aquifer (Zone C) reaches 200 feet thick. The lower aquifer (Zones D and E) is up to several hundred feet thick adjacent to the main strand of the Los Osos fault. There is also a perched aquifer less than 50 feet thick in the dune sands west of the Los Osos Creek Valley (Zone B), and a shallow alluvial aquifer typically 70 feet thick in the creek valley (Zone A). The lower aquifers extend beneath the alluvial aquifer in the creek valley (Yates and Wiese, 1988; Cleath & Associates, 2005, ISJ Working Group, 2010).

Basin groundwater users in the Los Osos Valley basin include Golden State Water Company, S&T Mutual, the Los Osos Community Services District, and overlying private well users. The three local water purveyors, along with the County of San Luis Obispo, are currently preparing a Basin Management Plan (BMP) under a court-approved Interlocutory Stipulated Judgment (ISJ Working Group). Estimates of the safe yield of the groundwater basin have been developed for the current condition, with existing septic systems in place, and assuming no new water development. The safe yield estimate of the basin under current conditions is 3,200 AFY (ISJ Working Group, 2010). Through the development of a BMP, it is the goal, among others, of the ISJ Working Group, to "provide for a continuously updated hydrologic assessment of the Basin, its water resources and safe yield."

TDS concentrations are generally between 200 mg/L and 400 mg/L. Nitrates are the primary constituent of concern in the upper aquifer, with concentrations in excess of the State drinking water standard of 45 mg/L as nitrate throughout the urban area (Cleath & Associates, 2005, 2006a, 2006b).

Lower aquifer displays characteristics of sea water intrusion on the west side of the basin. TDS concentrations also vary significantly by location, and have been reported at up to 950 mg/L in west side supply wells, although average values in the urban area are closer to 500 mg/L. Sea water intrusion is the main concern for lower aquifer water quality (Cleath & Associates, 2005; GSWC, 2009).

The primary constraint on water availability in the Los Osos Valley Groundwater Basin is deteriorating water quality due to sea water intrusion and nitrate contamination. The County of San Luis Obispo has certified that the basin is currently at a Level III severity rating (resource capacity has been met or exceeded) due to sea water intrusion. Through the development of the BMP, the ISJ Working Group will be evaluating and identifying the management strategies to implement, in coordination with the County's wastewater project, in order to improve conditions in the basin.

L.2 SOUTH COUNTY GROUNDWATER BASINS

See South County Groundwater Basins and Sub-Basins in L.2

13. San Luis Obispo Valley Groundwater Basin

The San Luis Obispo Valley Groundwater Basin is part of WPA 6 and WPA 7 and encompasses approximately 13,800 acres (approx. 21.6 square miles), including the newly defined Avila Valley Sub-Basin. The two larger sub-basins underlie the San Luis and Edna Valleys and are bounded by the Santa Lucia Range, the San Luis Range and the Los Osos and Edna faults. The San Luis Valley (WPA 6) and Edna Valley (WPA 7) Sub-basins comprise Basin 3-9 as defined by the DWR (DWR 1997; 2003). The Edna Valley Sub-basin (approximately 4,700 acres) is entirely within unincorporated San Luis Obispo County, while the San Luis Valley Sub-basin (approximately 8,000 acres) includes both unincorporated County and the City of San Luis Obispo.

The safe yield of the entire San Luis Valley Groundwater Basin was determined in a 1991 study based on elements of recharge and discharge, and in a 1997 study using elements of recharge and discharge, the

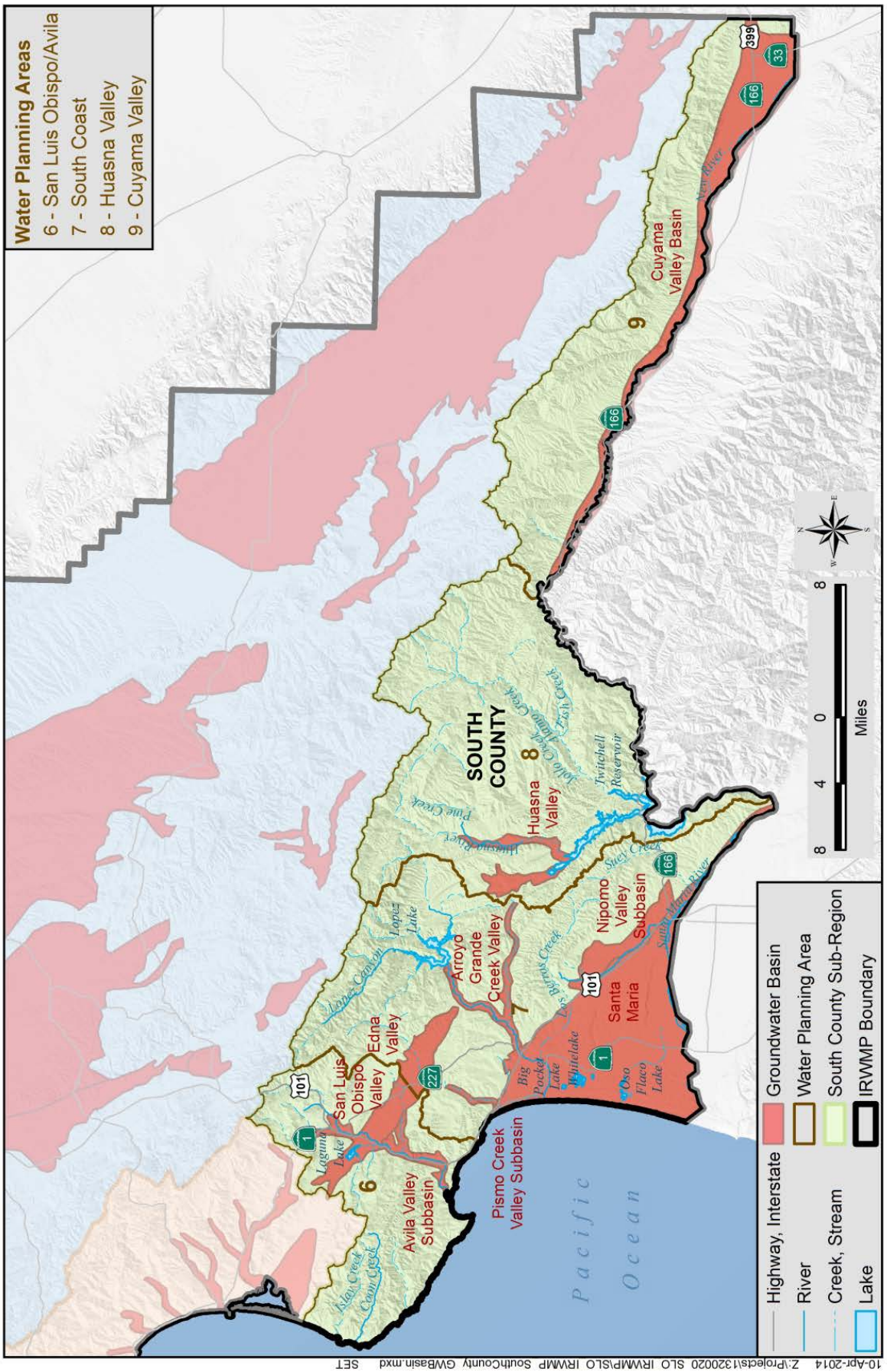


Figure L-3. South County Map of Groundwater Basins

length of the drought periods and the recovery time following them, and an assessment of the behavior of the basin. The 1991 study reported a value of sustained yield of the entire basin under existing conditions at 5,900 AFY. The 1997 DWR study reported a long-term dependable yield value for the San Luis Valley Sub-basin at 2,000-2,500 AFY, and a long-term dependable yield value for the Edna Valley Sub-basin at 4,000-4,500 AFY. DWR's 1997 study remains in draft form, but is the only yield estimate that separates the two main basin areas. Therefore, the lower values from the 1997 study, which total 6,000 AFY and closely match the 1991 study value, are selected for planning purposes. In summary, the safe yield of the groundwater basin is estimated at 6,000 AFY, of which 2,000 AFY is assigned to the San Luis Valley Sub-basin, and 4,000 AFY to the Edna Valley Sub-basin (Boyle, 1991; DWR 1997).

14. San Luis Valley Sub-Basin

The San Luis Valley Sub-basin is generally shallower than the Edna Valley sub-basin. Water supply aquifers are mostly within the alluvial deposits and underlying Paso Robles Formation, with a few productive wells tapping marine sands near Highway 101 and Los Osos Valley Road. These alluvial deposits are up to 60 feet deep and directly overlie bedrock in the western and northern areas of the basin. The Paso Robles Formation deposits extend to depths of up to 150-200 feet below ground surface. Recharge to the basin comes primarily from seepage of surface flows in San Luis Obispo Creek and tributaries (including discharges from the City of San Luis Obispo Water Reclamation Facility), deep percolation of precipitation, and residential/ agricultural return flows.

Sub-basin groundwater users include the City of San Luis Obispo, California State Polytechnic University, San Luis Coastal Unified School District, Chevron, close to two dozen small public water systems serving various commercial, industrial, and residential properties, agricultural growers, and private residences.

TDS concentrations in the San Luis Valley Sub-basin ranged from 320-630 mg/L (480 mg/L average) in six basin wells tested in 1988. Water quality problems vary by location within the basin, with nitrates, salinity, hardness, and perchloroethylene (PCE) historically being the constituents of greatest concern. PCE contamination was a major issue for two wells used by the City of San Luis Obispo during the period from 1987-91. Two high-capacity wells were also shut down in the 1990s due to elevated nitrate concentrations. Hardness and TDS/chloride are more of a concern in the airport area (Cleath, T. S., 1987, 1988; Boyle, 1991).

The primary constraints on water availability in the San Luis Valley Sub-basin include physical limitations, water quality issues, and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts. Elevated nitrates are a constraint for drinking water availability at some of the City of San Luis Obispo wells. Steelhead habitat protection in San Luis Obispo Creek would also be a potential constraint on groundwater availability. Wastewater discharges from the City of San Luis Obispo Water Reclamation Facility enter San Luis Obispo Creek near the Los Osos Valley Road overpass. Most of this water originates as imported water and provides additional recharge to wells downstream and to the riparian habitat.

15. Avila Valley Sub-Basin

Downstream of the Los Osos Valley fault, the San Luis Obispo Valley Groundwater Basin follows the alluvial deposits of San Luis Obispo Creek and tributaries to the ocean at Avila Beach. These alluvial deposits are typically less than 60 feet deep and are comprised of river gravel and sand beds overlain by floodplain silts and sands. Wells in the alluvium produce as much as several hundred gallons per minute. Wells in the underlying older sedimentary and volcanic beds may produce more than 100 gallons per minute. Some of these deep wells produce warm water in the vicinity of Sycamore Mineral Springs and San Luis Bay Estates. Where these bedrock units occur downstream of the Marre weir and along the coast, brackish or sea water may be encountered.

Avila Valley Mutual Water Company (MWC) and San Miguelito MWC produce water from the Avila Valley Sub-basin as do the agricultural and private water wells of overlying users in the valley. No basin yield numbers have been published for this sub-basin.

The alluvium extends out to the ocean but the fresh water portion of the alluvium is upstream of the Marre weir at San Luis Bay Estates. Prior to installation of this weir in the early 1970s, seawater intrusion had occurred as far up the valley as the confluence with See Canyon Creek. Since the installation of the weir and with the supplemental flow from the City of San Luis Obispo wastewater treatment plant, there has not been any seawater intrusion documented upstream of the weir.

The primary constraints on water availability in the Avila Valley Sub-basin are physical limitations and environmental demand. Shallow alluvial deposits are typically more susceptible to drought impacts. Releases from the City of San Luis Obispo Water Reclamation Facility into San Luis Obispo Creek significantly offset storage losses during drought, but are also intended to support steelhead habitat. Below the Marre Weir, sea water intrusion is the primary constraint to water availability.

16. Edna Valley Sub-Basin

The Edna Valley Sub-basin is part of WPA 7, rather than WPA 6, because surface and subsurface flow drains into the Santa Maria Valley Groundwater Basin. Sub-basin groundwater users include Golden State Water Company, San Luis Country Club (golf course), a few small public water systems, agricultural growers, and private residences. The estimated safe yield of the sub-basin is 4,000 AFY (DWR 1997; see San Luis Valley Sub-basin for additional details). The TDS concentration in the groundwater ranges from 630-780 mg/L (average 690 mg/L), based on public water company testing during 2008. The primary constraints on water availability in the Edna Valley portion of the basin are physical limitations and environmental demand. Lowering groundwater levels due to production in the basin may impact base flows to Pismo Creek, which support steelhead habitat.

Aquifers within the Edna Valley Sub-basin include alluvial deposits, the Paso Robles Formation, and underlying marine sands and shell beds. These basin materials are collectively thicker than basin strata in the San Luis Valley portion of the groundwater basin, reaching

depths of over 300 feet (Boyle, 1991; DWR 1997). Recharge to the basin comes primarily from seepage of surface flows (Davenport Creek, West Corral de Piedra Creek, East Corral de Piedra Creek, and Cañada Verde), deep percolation of precipitation, and residential/agricultural return flows.

17. Santa Maria Valley Groundwater Basin

The Santa Maria Valley Groundwater Basin is part of WPA 7. There are two boundaries currently in use for this basin, one defined by the California DWR and one defined by the Superior Court of California. The court-defined boundary was developed by a technical committee for use in basin adjudication. This study divides the basin into the court-defined management areas but also includes descriptions on three sub-basins (Pismo Creek Valley, Arroyo Grande Valley, and Nipomo Valley) within the DWR-defined basin that are outside of the adjudicated area. These three alluvial valleys are referred to herein as sub-basins as defined by a 2002 DWR study of the area.

The Santa Maria Valley Groundwater Basin (DWR boundary, including sub-basins) encompasses approximately 184,000 acres (288 square miles), of which approximately 61,220 acres (95.7 square miles) are part of the South Coast Sub-Region within San Luis Obispo County (see **Error! Reference source not found.**). This groundwater basin underlies the Santa Maria Valley in the coastal portion of northern Santa Barbara and southern San Luis Obispo Counties. The basin also underlies Nipomo and Tri-Cities Mesas, Arroyo Grande Plain, with sub-basins in the Nipomo, Arroyo Grande and Pismo Creek Valleys. The basin is bounded on the north by the San Luis and Santa Lucia Ranges, on the east by the San Rafael Mountains, on the south by the Solomon Hills and the San Antonio Creek Valley Groundwater Basin, on the southwest by the Casmalia Hills, and on the west by the Pacific Ocean. In addition, three sub-basins have been identified in San Luis Obispo County that are separated from the main basin by the Wilmar Avenue fault. These are the Pismo Creek Valley (1,220 acres), Arroyo Grande Valley (3,860 acres), and Nipomo Valley (6,230 acres) Sub-basins. The Santa Maria River Valley Groundwater Basin is designated by the DWR as Basin 3-12 (DWR 2002, 2003).

The Santa Maria Valley Groundwater Basin has been adjudicated. In 2005, the Superior Court of California entered a Judgment for a basin-wide groundwater litigation case that defined three basin management areas. These management areas are the Northern Cities Management Area (NCMA), the Nipomo Mesa Management Area (NMMA), and the Santa Maria Valley Management Area (SMVMA), which are used herein for planning by the County of San Luis Obispo. The Judgment incorporated a Stipulated Settlement which was made binding by the Court on the signatories, with a declaratory judgment and physical solution adjudged and decreed in the Judgment after Trial, dated January 25, 2008. The three DWR sub-basins included herein as separate basin components are outside of the adjudicated area.

The San Luis Obispo County portion of the SMVMA and the NMMA are in unincorporated County. The NCMA includes unincorporated County areas and the Cities of Pismo Beach, Arroyo Grande and Grover Beach. The City of Arroyo Grande also overlies a portion of the Arroyo Grande Sub-basin, and the City of Pismo Beach overlies a portion of the Pismo Creek

Valley Sub-basin.

18. Arroyo Grande Valley Sub-Basin

The Arroyo Grande Valley Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by DWR but outside of the adjudicated basin area. Water supply aquifers are within alluvial deposits in Arroyo Grande Valley, which is drained by Arroyo Grande Creek. The alluvial deposits reach approximately 100 feet thick (DWR 2002). Recharge to the sub- basin comes primarily from seepage from Arroyo Grande Creek (including Lopez Reservoir releases) and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

Sub-basin groundwater users include small public water systems (residential, commercial, and County park), and agricultural and residential overlying users. There is no estimated safe yield or existing developed yield value reported for this sub-basin. Groundwater levels in the Arroyo Grande Creek alluvium downstream of Lopez Dam are controlled by releases from Lopez reservoir, and have been fairly stable since 1969 (DWR 2002).

Historical groundwater quality in the Arroyo Grande Valley Sub-basin, based on samples collected in the 1980s, shows a progressive deterioration in a downstream direction. The general mineral character of groundwater in the valley changes upstream of the Tar Springs Creek confluence. The downstream section overlies a zone of multiple faults that may contribute highly mineralized water, along with irrigation water returns. With one exception, TDS, sulfate, and chloride concentrations in groundwater samples from wells in the upstream section met drinking water standards and the water was classified as suitable for agricultural irrigation. In the downstream section, TDS from wells typically exceeded 1,500 mg/L (the short term maximum drinking water standard), with sulfate concentrations exceeding the 500 mg/L upper limit for drinking water. The water was also classified as marginal to unsuitable for agricultural irrigation (DWR 2002).

The primary constraints on water availability in the Arroyo Grande Valley Sub-basin are water quality issues, environmental demand, and water rights. Although shallow alluvial deposits are typically more susceptible to drought impacts, releases from Lopez Reservoir provide greater dry period recharge than would otherwise exist. Groundwater quality in the lower sub-basin is marginal to poor, and steelhead habitat is present in Arroyo Grande Creek. The legal framework for Lopez Reservoir releases, downstream monitoring, and surface water allocations could also limit groundwater availability.

19. Nipomo Valley Sub-Basin

The Nipomo Valley Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by DWR but outside of the adjudicated basin area. Sub-basin water supply aquifers are limited to the older alluvium, which covers the floor of the valley up to approximately 90 feet thick, thinning to negligible thickness toward the eastern edges of the sub-basin. This older alluvium continues to supply some wells, although bedrock formations underlying the alluvium have, over time, become a more important source of groundwater supply (DWR 2002). The fractured rock reservoirs that lie beneath the alluvial deposits cover a much larger

area than the sub-basin limits, although the aquifer zones, which are defined by fracture permeability, are typically associated with particular strata and may be structurally complex. Recharge to the sub-basin comes primarily from seepage from Nipomo Creek, from deep percolation of precipitation, and residential/agricultural return flows.

Sub-basin groundwater users include residential and agricultural overlying users. The Nipomo Community Services District (Nipomo CSD) operates wells within the boundaries of the sub-basin, but these wells tap the deeper fractured rock reservoirs. There is no existing estimate for the perennial yield of this sub-basin.

Water quality is variable across the sub-basin, and the available data set does not distinguish between older alluvial wells and fractured rock wells, although most of the water represented is from the fractured rock reservoirs. Groundwater samples collected from 22 wells between 1962 and 2000 displayed the following characteristics: TDS concentrations ranged from 750 mg/L to 1,300 mg/L; sulfate concentrations between 200 and 340 mg/L; chloride concentrations between 64 and 130 mg/L; and nitrate concentrations from non-detect to 3.4 mg/L. Groundwater is classified as suitable to marginal under water quality guideline for irrigated agriculture (DWR 2002).

The primary constraints on water availability in the Nipomo Valley Sub-basin are physical limitations and water quality. The shallow alluvial deposits are typically more susceptible to drought impacts. The alluvial deposits also overlie and recharge fractured rock aquifers, and would experience declines in water levels and production during dry periods. Water availability in the fractures rock reservoirs can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge. Water quality results indicate that State maximum allowable concentrations of some constituents are exceeded at some wells.

20. Pismo Creek Valley Sub-Basin

The Pismo Creek Valley Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by the DWR but outside of the adjudicated basin area. Water supply aquifers are within alluvial deposits in Price Canyon, which is drained by Pismo Creek and its tributaries. The alluvium varies between 200 and 1,500 feet wide and is up to 60-70 feet thick (Cleath, 1986; DWR 2002; Fugro, 2009). Recharge to the sub-basin comes primarily from seepage from Pismo Creek and tributaries, from deep percolation of precipitation, and subsurface inflow from the Edna Valley Sub-basin.

Sub-basin groundwater users include residential and agricultural overlying users. Plains Exploration & Production Company (Oil Field) groundwater supply wells are not located in this sub-basin. The yield of the alluvial basin in the Spanish Spring ranch area has been estimated at 200 AFY, although this is before any consideration for environmental habitat demand (Fugro, 2009). Additional yield would be available from wells tapping the alluvium downstream of Spanish Springs Ranch, below the confluence of Las Cuevitas Creek, which drains the Indian Knob area. There is no estimate of the basin-wide yield.

Results of six groundwater samples collected from sub-basin wells in 1999 indicate a median TDS concentration of 620 mg/L. One well exceeded the State drinking water standards for TDS and sulfate, and most of the wells had iron and/or manganese concentrations above the drinking water standards (Fugro, 2009).

The primary constraints on water availability in the Pismo Creek Valley sub-basin are physical limitations and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts. Steelhead habitat protection in Pismo Creek and tributaries would also be a potential constraint on groundwater availability.

Brief Descriptions of Santa Maria River Valley Management Areas

Northern Cities Management Area

The Northern Cities Management Area (NCMA) is part of the Santa Maria Valley Groundwater Basin adjudicated area. Water supply aquifers are within alluvial deposits, the Paso Robles Formation, the Careaga Formation and the Pismo Formation. The alluvium is tapped by wells in the Arroyo Grande Plain Hydrologic Subarea, where it reaches a maximum thickness of 130 feet. The Paso Robles Formation ranges from approximately 150 to 500 feet thick across the management area. The Careaga Formation is up to 300 feet thick south of the Santa Maria River fault, and absent north of the fault. North of the fault, the Pismo Formation underlies the Paso Robles Formation, reaching thicknesses of close to 600 feet along the coast (DWR 2002; Todd, 2007). Recharge to the management area comes primarily from seepage from Arroyo Grande Creek (including releases from Lopez Reservoir), from deep percolation of precipitation (includes storm water infiltration basins), subsurface inflow from the Nipomo Mesa with underflow from Pismo Creek, Meadow Creek, Arroyo Grande Creek, and Los Berros Creek alluvium, and residential/agricultural return flows.

The 9,500 AFY yield value was reportedly based on the 1979 DWR groundwater study for the Arroyo Grande area, although this value originated as the maximum estimated safe seasonal yield for the Arroyo Grande Subunit in the 1958 DWR report. The 2009 Annual Report for the NCMA acknowledges the historical 9,500 AFY yield value, but indicates that the allocation for basin outflow of 200 AFY is unreasonably low, and that a regional outflow on the order of 3,000 AFY is a reasonable approximation of subsurface outflow needed to prevent seawater intrusion (Todd, 2010).

Groundwater in the Tri-Cities Mesa portion of the NCMA (north of the Arroyo Grande Plain) has a median TDS value of 650 mg/L, based on data from 1992-2000. Six of 35 wells tested exceeded the State drinking water standard for nitrate, which has been a concern in the area. In the Arroyo Grande Plain, historical data between 1950 and 1987 indicated that approximately three-quarters of the wells sampled had TDS values between 500 to 1,500 mg/L, with half the wells reporting sulfate concentrations greater than 250 mg/L (DWR 2002).

Water availability in the NCMA is primarily constrained by water quality issues and water rights. Basin sediments in the management area extend offshore along several miles of

coastline, where sea water intrusion is the greatest potential threat to the supply. Low coastal groundwater levels indicated a potential for seawater intrusion that was locally manifested in sentry wells 32S/13E N02 and N03 in 2009 after 3 dry years, with levels and water quality improving after an average rainfall year in 2010. The major purveyors have agreed to share the water resources through a cooperative agreement that also sets aside water for agricultural use and for basin outflow (Todd, 2007).

Basin groundwater users in the NCMA include City of Pismo Beach, City of Arroyo Grande, City of Grover Beach, Oceano Community Services District (Oceano CSD), small public water systems (including Halcyon Water System), Lucia Mar Unified School District, and residential and agricultural overlying users.

The safe yield of the DWR's Tri-Cities Mesa – Arroyo Grande Plain Hydrologic Subarea, reported as dependable yield, and was estimated between 4,000 AFY and 5,600 AFY prior to the formal establishment of the NCMA (DWR 2002). A 2007 Water Balance Study for the management area estimated total average annual recharge at 8,535 AFY, and an average annual groundwater production of 5,569 AFY between 1986 and 2004 without detectable sea water intrusion, supporting the DWR's 5,600 AFY safe yield value estimate (Todd, 2007). However, in 2009, evidence of seawater intrusion was detected at monitoring wells in the Oceano area, even though pumping within the NCMA did not exceed the safe yield of 5,600 AFY (NCMA, 2011).

The 2002 Groundwater Management Agreement (the "gentlemen's agreement") between the Northern Cities (with Oceano CSD) allocates an assumed safe yield of 9,500 AFY. The safe yield included subdivisions for agricultural irrigation (5,300 AFY), subsurface flow to the ocean (200 AFY) and urban uses (4,000 AFY). It also provided that urban groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses, referred to as an agricultural conversion credit, or "ag credit." Accordingly, the Cities of Arroyo Grande and Grover Beach have increased their groundwater allocations through the conversion of agricultural uses to urban uses within their service areas.

Nipomo Mesa Management Area

The Nipomo Mesa Management Area (NMMA) is part of the Santa Maria Valley Groundwater Basin adjudicated area. Water supply aquifers are within dune sands, the Paso Robles Formation, and the Careaga Formation (NMMA, 2008). DWR basin descriptions also include the Pismo Formation (DWR 2002).

The most productive and developed aquifers are in the alluvium and Paso Robles Formation. Dune sands forming the Nipomo Mesa reach a maximum thickness of close to 300 feet, although most of the sand is unsaturated. The Paso Robles Formation is the thickest and most extensive aquifer in the basin. The Paso Robles Formation in this area is up to 600 feet thick south of the Oceano fault and approximately 200 feet thick north of the fault. Further north beneath the Nipomo Mesa, the Paso Robles Formation is about 100 to 150 feet thick north of

the Santa Maria River fault.

Careaga Formation sands are approximately 200-300 feet thick beneath the Nipomo Mesa and are completely missing north of the Santa Maria River fault. Pismo Formation sands are interpreted to underlie the Paso Robles Formation north of the Santa Maria River fault (DWR 2002).

The NMMA has defined a Shallow Aquifer and a Deep Aquifer. The Shallow Aquifer within the NMMA is considered to be an unconfined aquifer. The Deep Aquifer is considered to be confined (NMMA Technical Group, 2009). All production from wells used for public drinking water and industrial water is likely pumped from the Deep Aquifer (primarily the Paso Robles Formation (NMMA 2009 Annual Report). Recharge to the management area comes primarily from deep percolation of precipitation, subsurface inflow from the Santa Maria Valley, and residential/agricultural return flows.

Basin groundwater users in the Nipomo Mesa Management Area include Golden State Water Company, Rural Water Company, Woodlands Mutual Water Company (MWC), ConocoPhillips, Nipomo Community Services District (Nipomo CSD), Lucia Mar Unified School District, small public water systems (serving residential, industrial and nursery/greenhouse operations), and commercial, agricultural and residential overlying users.

DWR (2002) estimated the dependable yield (DWR 2002, Page ES21) for their study area to be between 4,800 AFY and 6,000 AFY, which was prior to the formal establishment of the NMMA. The DWR study area was approximately equivalent to the boundary of the NMMA. The 2009 Annual Report for the NMMA does not estimate safe yield, nor does it estimate the portion of rainfall that percolates downward recharging the shallow aquifer in a specific place, or the deep aquifer because of the uncertainty in the geometry of confined and unconfined aquifers.

Water quality varies in general mineral character across the Nipomo Mesa. The median TDS in 35 wells sampled between 1990 and 2000 was approximately 500 mg/L. Nitrate has been detected in excess of the drinking water standard in relatively few wells (DWR 2002; NMMA Technical Group, 2009).

According to the database maintained by the California Department of Public Health (CDPH), production wells used for public drinking and industrial use in the NMMA met drinking water quality standards in 2008. One of the ConocoPhillips production wells had a reported value of 1,000 mg/L TDS, the highest reported to the CDPH within the NMMA; the well is used for industrial processing (NMMA Technical Group, 2009).

The primary constraints on water availability in the NMMA would be physical limitations to the east, water quality on the west, and water rights. The base of permeable sediments rises toward the eastern boundary of the area, reducing groundwater in storage and increasing the susceptibility of wells to drought impacts and associated water level declines. To the west, where deeper sediments allow for greater storage fluctuations, sea water intrusion would

limit the available fresh water.

The Nipomo Mesa Water Conservation Area is currently in a certified Level of Severity III for water supply (resource capacity has been met or exceeded), as defined by San Luis Obispo County. The County's Level of Severity III led to the preparation of a water conservation ordinance (San Luis Obispo County Code, Title 8 Chapter 8.92, effective September 25, 2008).

The NMMA Technical Group has established a groundwater monitoring plan that uses coastal and inland key wells to assess the condition of the basin. The 2008 Annual Report indicates that a potentially severe water shortage condition exists. This condition calls for voluntary actions under a response plan, with recommendations to draft a Well Management Plan and a conceptual plan to identify specific actions to be taken (NMMA Technical Group, 2009).

Santa Maria Valley Management Area

The Santa Maria Valley Management Area (SMVMA) is part of the Santa Maria Valley groundwater basin adjudicated area. Water supply aquifers are within alluvial deposits, the Paso Robles Formation, and the Careaga Formation. The alluvial deposits are up to 230 feet thick beneath the Santa Maria River. The Paso Robles Formation reaches up to 700 feet thick at the southern County border along the Santa Maria River. The Careaga

Formation reaches a thickness of close to 700 feet beneath the Santa Maria Plain (DWR 2002). Recharge to the management area comes primarily from seepage of surface flows in the Santa Maria River (including releases from Twitchell reservoir), deep percolation of precipitation, and residential/agricultural return flows.

Basin groundwater users in the San Luis Obispo County portion of the SMVMA consist primarily of agricultural overlying users, with some residential overlying users and a small public water system.

The SMVMA, most of which is in Santa Barbara County, provided 124,000 AFY of average annual production to wells over a perennial yield study period without sea water intrusion or a decline in groundwater levels and storage (Luhdorff & Scalmanini, 2000). The 2008 Annual Report for the Management Area estimated 125,100 acre-feet of groundwater production in the basin for 2008, with no indications of severe water shortage (Luhdorff & Scalmanini, 2009). Safe Yield in the San Luis Obispo County portion of the Santa Maria Valley, reported as dependable yield, was estimated between 11,100 AFY and 13,000 AFY prior to the formal establishment of the SMVMA (DWR 2002).

Sulfate and TDS are the primary constituents of concern within the San Luis Obispo County portion of the SMVMA. TDS concentrations collected in four area wells between 1992 and 1998 ranged from approximately 750 mg/L to 1,300 mg/L, with a median of 1,200 mg/L, which exceeds the State drinking water standard upper limit of 1,000 mg/L. All the sulfate concentrations exceeded the recommended drinking water standard of 250 mg/L and some exceeded the upper limit of 500 mg/L. TDS was up to 800 mg/L greater in the alluvial aquifer, when compared to the underlying Paso Robles Formation aquifers. Nitrates are also a

concern in several areas of the valley, although the majority of groundwater sample results in the San Luis Obispo County portion of the valley are below the MCL (DWR 2002).

The primary constraint on water availability in the San Luis Obispo County portion of the SMVMA would be water quality and water rights. A natural outflow of fresh water must be maintained, both in the deeper aquifer zones where sea water pressures are greatest, and in the shallow alluvial zones where irrigation returns are concentrated. The operation of Twitchell reservoir and the Superior Court Stipulated Judgment and Judgment after Trial affect groundwater availability.

21. Huasna Valley Groundwater Basin

The Huasna Valley Groundwater Basin is part of the South Coast Sub-Region and encompasses approximately 4,700 acres (approx. 7.3 square miles). The basin underlies valleys drained by two branches of Huasna Creek, which flow to Twitchell reservoir. Huasna Valley has been designated as Basin 3-45 and is entirely within unincorporated San Luis Obispo County (DWR 2003). Recharge to the basin comes primarily from seepage from Huasna River and tributaries, deep percolation of precipitation, residential/agricultural return flows, and from Twitchell reservoir seepage when the reservoir fills the lower valley. The basin aquifer consists of alluvial deposits drained by Huasna Creek and Huasna River (DWR 2003).

Basin water users are residential and agricultural overlying users. There is no existing estimate of basin safe yield or hydrologic budget items. No historical water quality data for the alluvial basin has been published in public documents or is available through the STORET Legacy Database.

Constraints on water availability in the Huasna Valley Groundwater Basin include physical limitations. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers. Water availability in the sandstone and fractured reservoirs can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

There is limited hydrogeologic information published for this basin. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

22. Cuyama Valley Groundwater Basin

The Cuyama Valley Groundwater Basin is part of the South Coast Sub-Region and encompasses approximately 147,200 acres (230 square miles), of which approximately 32,600 acres (51 square miles) are within San Luis Obispo County. The basin underlies the valley drained by the Cuyama River and is bounded on the north by the Caliente range and on the Southwest by the Sierra Madre Mountains. Cuyama Valley has been designated as Basin 3-13

and includes portions within unincorporated San Luis Obispo County, Santa Barbara County, Kern County, and Ventura County (DWR 2003). Recharge to the basin comes primarily from seepage from Cuyama River, deep percolation of precipitation, and residential/agricultural return flows.

The aquifer consists of alluvial deposits and older terrestrial deposits. The thickness of the alluvium is inferred to be from 150 to 250 feet (DWR 2003 after Upson and Worts 1951). Basin groundwater users in the San Luis Obispo portion of the basin include oil field operators and residential/agricultural overlying users. Perennial yield for the entire basin has been estimated between 9,000 and 13,000 AFY (Upson and Worts, 1951). The long- term potential recharge of the basin was estimated between 12,000-16,000 AFY, with an average of 13,000 AFY year (Singer and Swarzenski, 1970). A safe yield of 10,667 AFY gross (8,000 AFY net consumptive use) was estimated in 1992 (Baca et al., 1992). The most recent compilation of hydrologic budget information presents a groundwater budget in which total groundwater pumpage is 40,592 AFY, resulting in a deficit of 30,532 AFY (Anderson et al., 2009). This hydrologic budget compilation indicates a perennial yield on the order of 10,000 AFY, which is within the range of prior work. There is no separate yield estimate for the San Luis Obispo County portion of the basin.

Water quality within this basin generally deteriorates towards the west end of the basin, where the sediments thin. There is also poor quality water towards the northeast end of the basin at extreme depth. Although groundwater in the Cuyama Valley Groundwater Basin is only of fair chemical quality, it has been used successfully to irrigate most crops. Presumably this has been possible because the sodium content of most of the water is relatively low and the soils are quite permeable (County of Santa Barbara 2005 Groundwater Report; Upson and Worts, 1951; Singer and Swarzenski, 1970). Analyses of water from three public supply wells show an average TDS content of 858 mg/L and a range from 755 to 1,000 mg/L. USGS analyses show TDS content as high as 1,750 mg/L. Because of constant cycling and evaporation of irrigation water in the basin, water quality has been deteriorating (DWR 2003; SBCWA 1996; SBCWA 2001).

Groundwater near the Caliente Range has high salinity. Nitrate content reached 400 mg/L in some shallow wells (DWR 2003; County of Santa Barbara Planning and Development Department, 1994).

Constraints on water availability in the Cuyama Valley Groundwater Basin are primarily physical limitations. The maximum potential yield that can be achieved through lowering water levels to increase natural stream flow seepage and to reduce subsurface outflow have been reached (production has exceeded this value). The County of San Luis Obispo Planning Department has determined that the basin is currently at a Level III severity rating (resource capacity has been met or exceeded) due to historical groundwater level declines and resulting groundwater storage losses.

In 1980, the Cuyama Valley Groundwater Basin was identified by the California Department of Water Resources as one of the eleven basins in “critical condition of overdraft. Although the

groundwater basin is experiencing serious hydrologic impacts due to unsustainable groundwater pumping practices, a groundwater management plan for the basin does not exist. Since this basin lies within four counties, future efforts for a county groundwater management plan will likely be difficult (Andersen et al., 2009).

L.3 NORTH COUNTY SUB-REGION GROUNDWATER BASINS AND SUB-BASINS

23. Carrizo Plain Groundwater Basin

The Carrizo Plain Groundwater Basin is located in WPA 10 and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-19 (DWR 2003). The basin is 173,000 acres (approx. 270 square miles) in size and is situated between the Temblor Range to the east and the Caliente Range and San Juan Hills to the west. The basin has internal drainage to Soda Lake.

Groundwater in the basin is found in alluvium, the Paso Robles Formation, and the Morales Formation (DWR 2003). The upper alluvium and Paso Robles Formation deposits are more than 3,000 feet thick in the eastern portion of the basin and decrease in thickness to the west. Recharge to the basin is predominantly from percolation of stream flow and infiltration of precipitation.

There is one small public water system serving the local school (part of the Atascadero Unified School District). All other pumping in the basin is for agricultural and residential purposes by overlying users. There are two proposed solar farms that will located within this WPA (Topaz Farms 550-MW; SunPower 250-MW).

The safe yield of the basin is estimated to be 600 AFY (DWR 1958). The Kemnitzer safe yield was estimated at 59,000 AFY (based on 1967 inflow/outflow analysis). Taking into consideration the methodologies used in previous studies, current and historical groundwater levels, and water quality, the solar project EIRs' water analyses conclude that a more reasonable safe yield on which to base planning decisions is between 8,000 to 11,000 AFY.

Groundwater samples from 79 wells collected from 1957 to 1985 show total dissolved solids concentration ranging from 161 to 94,750 mg/L (DWR 2003). Groundwater in the lower alluvium and upper Paso Robles Formation that both underlie Soda Lake are highly mineralized. Groundwater deeper in the confined Paso Robles Formation is of higher quality. Groundwater in the Morales Formation is likely brackish.

Constraints on water availability in the basin include physical limitations and water quality issues. The low safe yield estimate of this basin relative to its large size, and the high TDS concentrations in areas (e.g., Soda Lake) suggest that water availability in the region is limited. Other than water quality issues associated with the internal drainage structure of the basin, other constraints are not well defined.

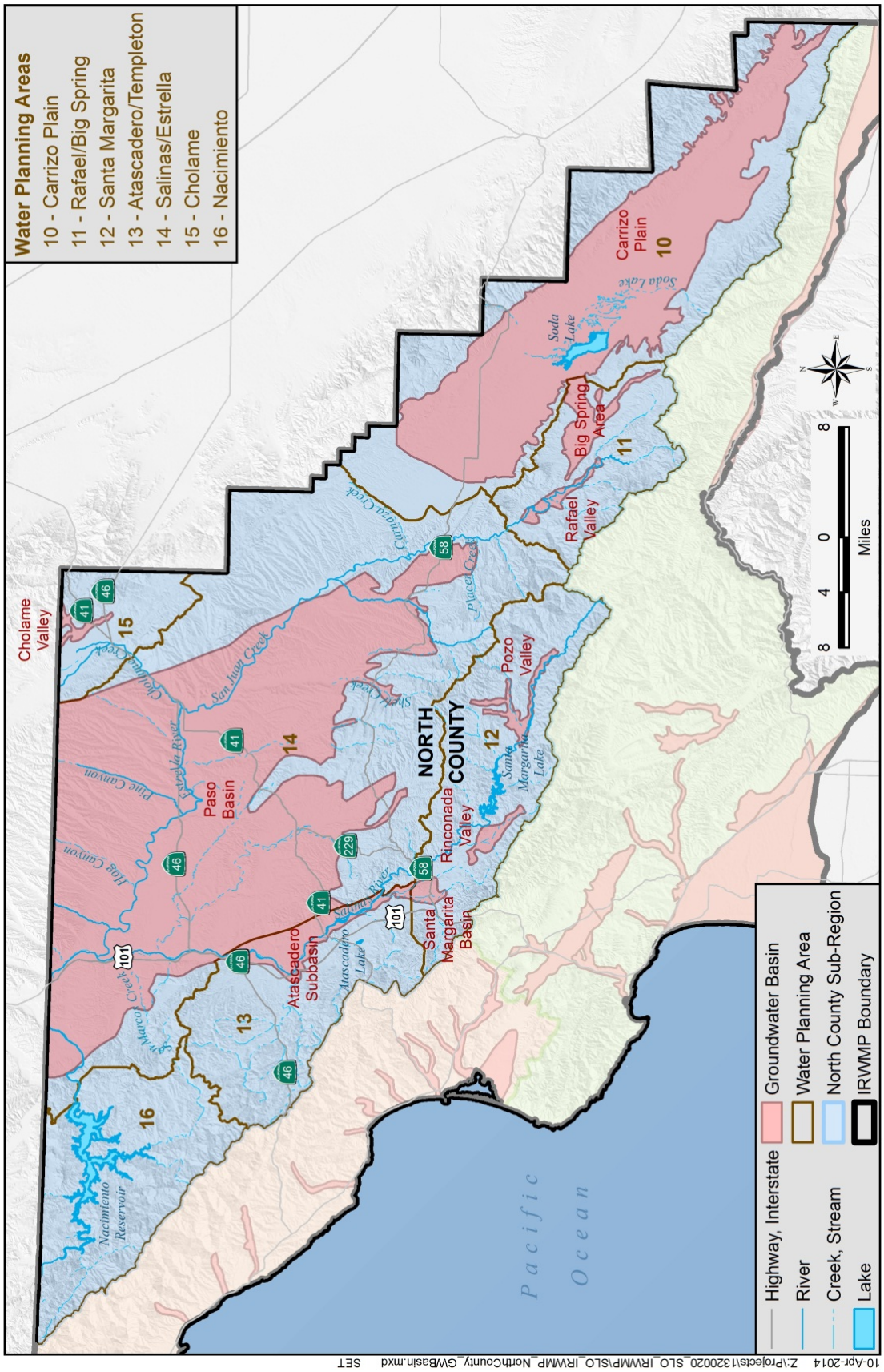


Figure L-4. North County Map of Groundwater Basins

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

24. Rafael Valley Groundwater Basin

The Rafael Valley Groundwater Basin is located in the Inland Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-46 (DWR 2003). The basin underlies the Rafael Valley and is 2,990 acres (approx. 3.6 square miles) in size. The Rafael Valley is drained by the Rafael and San Juan creeks.

According to Bulletin 118, the main water-bearing unit in the basin is an alluvial aquifer (DWR 2003). There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality for this basin.

Constraints on water availability in the Rafael Valley Groundwater Basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rafael Valley, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

25. Big Spring Area Groundwater Basin

The Big Spring Area Groundwater Basin is located in the Inland Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-47 (DWR 2003). The basin is 7,320 acres (approx. 11.4 square miles) in size and underlies a valley that is drained by a tributary to San Juan Creek. According to Bulletin 118, the main water-bearing unit in the basin is Quaternary age alluvium (DWR 2003). No additional information is available describing the basin hydrogeology.

There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality.

Constraints on water availability in this basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore

susceptible to drought impacts. In the Big Spring area, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge. Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

26. Pozo Valley Groundwater Basin

The Pozo Valley Groundwater Basin is located in the Inland Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-44 (DWR 2003). The basin is 6,840 acres (approx. 10.7 square miles) in size and is bounded on all sides by low permeability rocks. The basin is drained by Pozo Creek and the Salinas River, both of which flow into Santa Margarita Lake.

According to Bulletin 118, alluvium is the main water-bearing unit in the basin (DWR 2003). The alluvium is up to 30 feet thick. Basin recharge occurs as percolation of stream flow, percolation of precipitation, and irrigation return flows.

There are some small public water systems in the basin. All other pumping is for residential and agricultural purposes by overlying users. The safe yield in the basin has been reported to be 1,000 AFY (DWR 1958). According to Bulletin 118, groundwater samples from 5 wells in the basin taken from 1951 to 1988 indicate TDS concentrations ranging from 287 to 676 mg/L (DWR 2003).

Constraints on water availability in this basin are physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Pozo Valley, the alluvial aquifer also overlies and recharges the underlying rock formations. Water availability in the consolidated rock reservoirs is generally limited and highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary.

27. Rinconada Valley Groundwater Basin

The Rinconada Valley Groundwater Basin is located in the Inland Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-43 (DWR 2003). The basin underlies the Rinconada Valley and is 2,580 acres (approx. 4 square miles) in size. The valley is drained by Rinconada Creek, which is tributary to the Salinas River.

There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality in the basin. There is very limited information available for this basin. If the

District requires more current or detailed information for this basin, new studies would be necessary.

Constraints on water availability in the Rinconada Valley basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rinconada Valley, the alluvial aquifer also overlies and recharges the underlying rock formations. Water availability in the consolidated rock formations is generally limited and highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

28. Santa Margarita Valley Groundwater Basin

The Santa Margarita Valley Groundwater Basin is located in the Inland Sub-Region. The basin area includes the unincorporated town of Santa Margarita and surrounding rural residences and agricultural fields. The total drainage area associated with the basin consists of four watersheds that collectively drain in the northerly direction into the Salinas River. The major creeks associated with the four watersheds are the Santa Margarita Creek, the Yerba Buena Creek, Trout Creek, and Rinconada Creek.

The basin primarily contains four geologic units and supply aquifers: 1) the Younger Alluvium, 2) Older Alluvium, 3) Paso Robles Formation, and 4) Santa Margarita Formation. The shallow Younger Alluvium and Older Alluvium deposits occur along the active stream channels and along the eastern basin boundary. In particular, alluvial deposits associated with the Santa Margarita Creek extend from the ground surface to a depth of about 50 feet. Relative to the deeper Paso Robles and Santa Margarita Formations, the Younger and Older Alluvium have high hydraulic conductivities.

The deeper Paso Robles Formation ranges in thickness up to 300 to 400 feet. The Paso Robles Formation is found at depths in the range of 400 to 500 feet below ground surface. The Santa Margarita Formation overlies the Monterey Formation, which likely defines the effective base of fresh water in the basin area. The Santa Margarita Formation thickness likely ranges up to 1,000 feet. The Paso Robles and Santa Margarita Formations tapped by wells for water supply purposes are typically located in the Yerba Buena Creek area.

Water users in the Santa Margarita area include the unincorporated town of Santa Margarita and overlying users. Water service for the town of Santa Margarita is provided by County Service Area Number 23 (CSA 23). CSA 23 is owned/governed by the County of San Luis Obispo and is operated/managed by the Department of Public Works. Overlying users include rural residences and agricultural users.

No comprehensive studies to determine the perennial yield of the Santa Margarita Valley Groundwater Basin are known to exist. Based on an evaluation of available data used for the Santa Margarita Ranch (Ranch) Environmental Impact Analysis study, however, Hopkins (2006) indicated that the average annual yield of the basin in the vicinity of the proposed Ranch development may be in the range of 400 to 600 AFY. Although the Santa Margarita

Creek alluvial aquifer serves as the primary source of water for the town of Santa Margarita, there is no safe yield estimate for this aquifer. The TDS concentration in wells constructed in the alluvial deposits and in the Santa Margarita Formation were reported to be 400 mg/L and 490 mg/L, respectively (Todd, 2004). Methylene blue active substances (MBAS) is an indicator of soaps and detergents, and is used to detect impacts of onsite wastewater disposal systems (e.g., septic tanks) on groundwater quality. MBAS was detected in two alluvial aquifer wells but not in any Santa Margarita Formation wells (Todd, 2004). Total coliform, fecal coliform, and Escherichia coli data were reviewed by Todd (2004) and found to be suggestive, although not conclusive, of small impacts on both shallow and deep aquifer wells from local wastewater disposal systems.

The primary constraint on water availability in the basin concerns physical limitations. Although the alluvial aquifer is considered to be highly productive, it is shallow in vertical extent (i.e., 50 feet thick) and therefore highly susceptible to seasonal fluctuations in groundwater levels of about 15 to 20 feet. During dry water years or extended droughts, well yields may be significantly reduced due to low groundwater levels (Todd, 2004).

Recharge in the shallow alluvial deposits for a particular year is dependent on rainfall, creek stream flows, and precipitation runoff generated in the four watersheds.

Wells developed in the Santa Margarita Formation generally do not have sufficient yields to reliably replace the wells in the alluvial aquifer. Hydrographs of deep wells indicate that groundwater levels have been trending downward there at least over the last decade (Hopkins, 2006).

29. Paso Robles Groundwater Basin

The Paso Robles Groundwater Basin is part of the Inland Sub-Region. According to California's Groundwater Bulletin 118, the entire Paso Robles Groundwater Basin is located within the greater Salinas Valley Groundwater Basin and is identified as Groundwater Basin Number 3-4.06. The Paso Robles Groundwater Basin is located in both Monterey and San Luis Obispo counties and is 505,000 acres (approx. 790 square miles) in size. Roughly one-third of the areal extent of the Paso Robles Groundwater Basin extends into Monterey County. The basin ranges from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon.

In general, the Salinas River, Estrella Creek, San Juan Creek, Huer Huero Creek, and numerous other smaller channels that are tributary to these major rivers and creeks drain the basin. Groundwater in the basin is found in alluvium and in the Paso Robles Formation. In general, the alluvium is mostly unconfined, ranges in depth from 30 to 130 feet below ground surface, and is characterized by relatively high permeability. Most of the alluvium associated with the various rivers and creeks in the basin provide limited supplies of extractable groundwater. The Salinas River, however, is a significant source of groundwater to several municipalities located adjacent to and along its reach as well as a number of overlying users with appropriative or riparian rights. Groundwater in the alluvium is a principal source of recharge

to the underlying Paso Robles Formation. The Paso Robles Formation is the most significant source of groundwater in the basin. Recharge to the basin derives from stream percolation of the alluvium underflow, infiltration of precipitation, and deep percolation of applied irrigation and wastewater discharge.

Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major municipal water purveyors include the Atascadero MWC, City of Paso Robles, Templeton CSD, CSA 16-1 (Shandon), and San Miguel Community Services District (San Miguel CSD). The San Luis Obispo County Environmental Health Department also identified 36 small commercial and community water systems that extract groundwater from the basin, including Garden Farms MWC and Green River Mutual Water Company. Overlying users include rural domestic residences and agricultural users.

The perennial yield of the Paso Robles Groundwater Basin (including the Atascadero Groundwater Sub-basin) is estimated to be 97,700 AFY (Fugro, 2005). A review of available data by Fugro (2002) found that groundwater quality in the basin is generally good. Five potential water quality issues, however, were identified (excluding the Atascadero Groundwater Sub-basin):

1. Increasing chlorides in the deep, historically artesian aquifer northeast of Creston.
2. Increasing TDS and chlorides near San Miguel.
3. Increasing nitrates in the Paso Robles Formation in the area north of Highway 46, between the Salinas River and the Huer Huero Creek.
4. Increasing nitrates in the Paso Robles Formation in the area south of San Miguel.
5. Increasing TDS and chlorides in deeper aquifers near the confluence of the Salinas and Nacimiento Rivers.

The 2009 Consumer Confidence Report for the City of Paso Robles reported no violations of MCL values for regulated substances and secondary substances in groundwater pumped by its wells. The 2007 Consumer Confidence Report for the San Miguel CSD reported a measured arsenic concentration of 11 µg/L (MCL for arsenic is 10 µg/L) and a measured barium concentration of 71.5 µg/L (MCL for barium is 2 µg/L). The 2008 Water Quality Report for CSA 16-1 found that none of the tested regulated and secondary substances in water samples exceeded their MCL values.

Primary constraints on water availability in the basin include water rights, water quality, and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Board and no future plans exist to increase these demands beyond the current allocations. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation. In terms of physical limitations, Todd (2009) estimated the total groundwater pumping in the basin during 2006 to be 88,154 AF, which is 90 percent of the basin perennial yield of 97,700 AFY.

Portions of the Paso Robles Groundwater Basin have experienced significant water level declines over the past 15 to 20 years (Fugro 2002, Fugro 2005, Todd 2007, Todd 2009). The causes of the water level declines include a range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural ("ranchette") users. The County Board of Supervisors has certified a Level of Severity III for the main Basin and a Level of Severity I for the Atascadero Sub-basin based on findings in the 2009 Resource Capacity Study and an updated pumping analysis for the basin. As a result of the certification, certain land use and monitoring actions will be implemented by the County.

30. Atascadero Groundwater Sub-Basin

The Atascadero Groundwater Sub-basin is located in the Inland Sub-Region and is a sub-basin within the Paso Robles Groundwater Basin. The northern boundary of the sub-basin is approximately the southern end of the City of Paso Robles and the southern sub-basin boundary is located just south of the community of Garden Farms. The eastern boundary of the sub-basin is the Rinconada fault. Because the fault displaces the Paso Robles Formation, the hydraulic connection between the aquifer across the Rinconada fault is sufficiently restricted to warrant the classification of this area as a distinct sub-basin. Therefore, the Atascadero Groundwater Sub-basin of the Paso Robles Groundwater Basin is defined as that portion of the basin west of the Rinconada fault.

The Atascadero Groundwater Sub-basin includes the City of Atascadero and the communities of Templeton and Garden Farms. The Salinas River is the major hydrologic feature in the sub-basin. Outflow (primarily surface flow and Salinas River underflow) occurs in the northern direction from the sub-basin into the Estrella subarea of the Paso Robles Groundwater Basin.

Pumping test data from wells in the sub-basin suggest the presence of three aquifer groups with distinctly different hydraulic characteristics: 1) Alluvium along the floodplain of the Salinas River; 2) Paso Robles Formation deposits directly underlying the Salinas River alluvium; and 3) Paso Robles Formation deposits along the east side of the sub-basin that are not directly connected to the younger alluvium.

The Salinas River alluvium is an unconfined aquifer with a high hydraulic conductivity. The thickness of the alluvium ranges widely, with an estimated maximum thickness of 100 feet. Shallow wells up to 100 feet deep are located in the immediate vicinity of the Salinas River along its entire reach, typically tapping the younger alluvium and/or shallow Paso Robles Formation aquifer zones. Approximately half of the total pumping in the sub-basin is from these shallow, alluvial wells.

In the City of Atascadero area, the Paso Robles Formation underlies the younger Salinas River alluvium. Wells in the Paso Robles Formation in hydraulic communication with the overlying river alluvium tend to have higher hydraulic conductivity values when compared to wells that penetrate the portions of the Paso Robles Formation not in contact with the alluvium.

Paso Robles Formation deposits east of the Salinas River comprise the largest portion of the sub-basin. The deepest part of the formation is the area between Templeton and the Rinconada fault. In general, deep wells reach several hundred feet deep and tap the Paso Robles Formation.

The main source of recharge in the alluvium is the Salinas River. Recharge to the Paso Robles Formation occurs from the overlying Salinas River alluvium as well as from overlying channel deposits of the Santa Margarita, Atascadero, Graves, and Paso Robles creeks.

Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major water purveyors are the Atascadero Mutual Water Company (Atascadero MWC), Templeton Community Services District (Templeton CSD), and Garden Farms Mutual Water Company (Garden Farms MWC).

The perennial yield of the sub-basin was estimated to be 16,400 AFY (Fugro, 2002). Evaluation of water quality in the sub-basin is based on historical data from 1970 to 1997 collected and reviewed by Fugro (2002). TDS concentrations measured in wells along the Salinas River alluvium range from 317 to 857 mg/L. TDS concentrations measured in wells in the Paso Robles Formation range from 389 to 975 mg/L (Fugro, 2002). Water quality data from 11 wells and one spring in the sub-basin showed that no concentrations of contaminants exceed their respective MCL values (Fugro, 2002). The 2008 Water Quality Report for both Templeton CSD and Atascadero MWC found that none of the tested regulated and secondary substances in water samples exceeded their MCL values.

Primary constraints on water availability in the sub-basin include water rights and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Water Resources Control Board (State Board) and no plans exist to increase these demands beyond the current allocations. Full appropriation implies that no additional rights to the Salinas River flows are being issued by the State Board at this time nor is any additional pumping for existing rights being granted. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation.

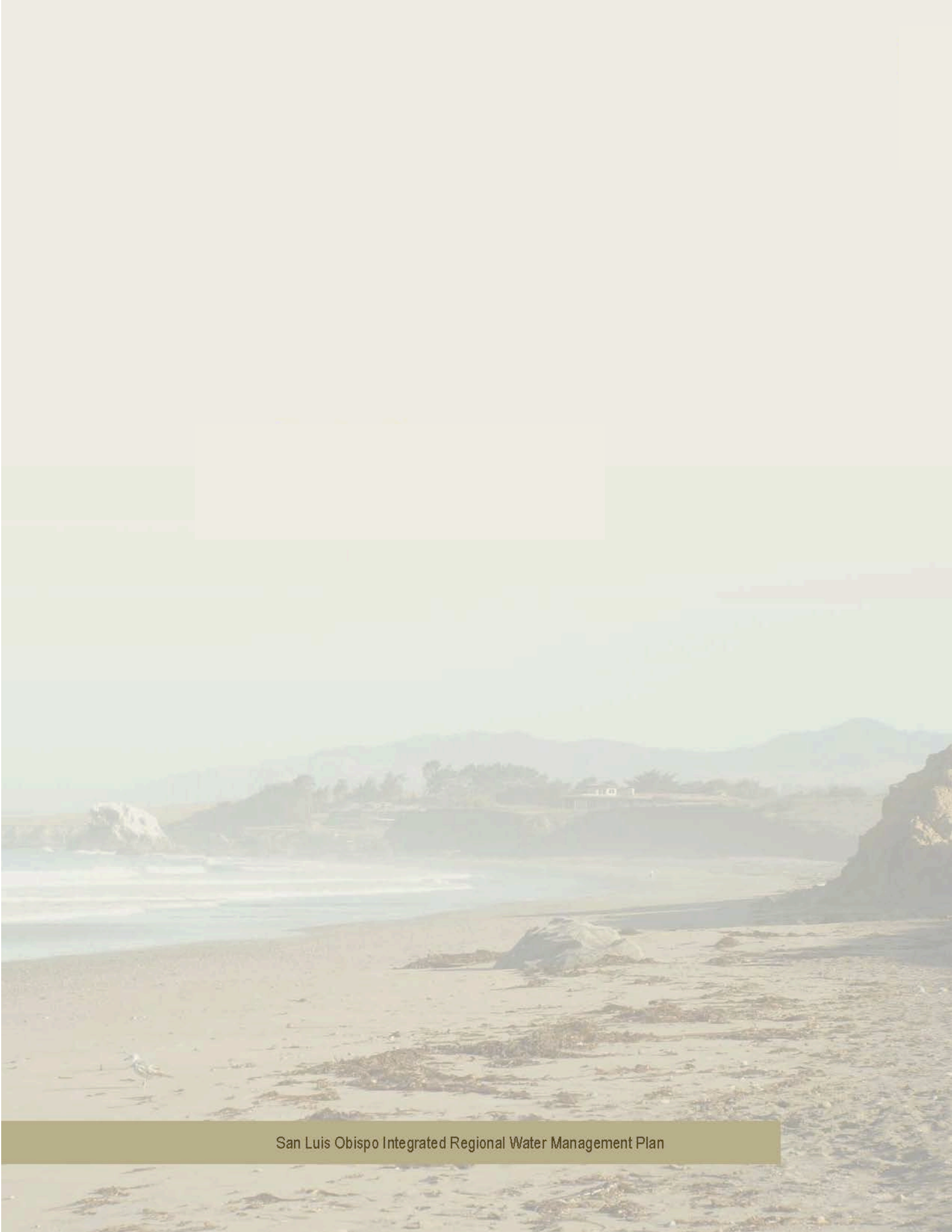
In terms of physical limitations, Todd (2009) estimated the gross groundwater pumping in the sub-basin during 2006 to be 15,545 AF, which is 95 percent of the sub-basin perennial yield of 16,400 AFY. Ongoing studies may revise the estimated outflow from the sub-basin. According to Fugro (2010), whereas total groundwater in storage in the main part of the Paso Robles Groundwater Basin is predominantly in the Paso Robles Formation, the Salinas River alluvium in the Atascadero Groundwater Sub-basin accounts for a significant percentage of the total groundwater storage in the sub-basin. Pumping from the alluvium should be accounted for separately from pumping from the Paso Robles Formation. Furthermore, Fugro opined that pumping in excess of the perennial yield in the sub-basin may not necessarily be reflected by decreasing groundwater levels in the Paso Robles Formation since significant pumping occurs in the alluvium.

31. Cholame Valley Groundwater Basin

The Cholame Valley Groundwater Basin is located in the Inland Sub-Region and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-5 (DWR 2003). The basin is located in both Monterey and San Luis Obispo counties and is 39,800 acres (approx. 62.2 square miles) in size. The basin is comprised of alluvium and is bounded in the southwest by the Paso Robles Formation. The valley is drained by Cholame Creek. The depths of the wells in this area ranged from 100 to 665 feet. Most wells were located on the fringe of the basin in the upper canyon areas and are used primarily for domestic water supply.

There are some small public water systems in the San Luis Obispo County portion of the basin. All other pumping is for residential and agricultural purposes by overlying users. No information is available describing basin yield. Very limited groundwater quality information has been published or described. Water quality data from non-specific sites indicate generally high concentrations of TDS, chlorides, sulfates, and boron (Chipping, et al., 1993). Constraints on water availability in this basin include physical limitations and water quality.

Published hydrogeologic information for this basin is limited. If the District requires more current or detailed information for this basin, new studies would be necessary.



San Luis Obispo Integrated Regional Water Management Plan

Appendix M

Water Planning Area Water Providers

Appendix M. Water Planning Area Water Providers

The description of each water district, agency, and community services district (Water Providers) contained within this appendix is a compilation of many works from prior studies and reports. Much of the information contained within this section is changing from year to year, especially at the 5 year interval of the Urban Water Management Plans as they are updating much of the numerical information presented.

This Appendix is organized by WPA and Water Provider from north to south within each Sub-Region and WPA. See **Figure M-1** for location of larger Water Providers in the IRWM Planning Region. Smaller Water Providers are included in WPA figures contained within **Section C – Region Description** of the IRWM Plan.

M.3 WATER PROVIDERS (BY WPA)

Figure M-1 on the following page shows a map of the water provider service areas within the San Luis Obispo IRWMP Region. Brief descriptions of the water providers are presented in the following section.

Water Planning Areas and Related Water Districts

M.3 Water Providers (By WPA) **M-3**
M.4 North Coast Water Suppliers **M-5**
M.4.6 WPA 1 – San Simeon M-5
M.4.7 WPA 2 – Cambria M-6
M.4.8 WPA 3 – Cayucos M-7
M.4.9 WPA 4 – Morro Bay M-7
M.4.10 WPA 5 – Los Osos M-9
M.5 South County Water Suppliers **M-11**
M.5.6 WPA 6 – San Luis Obispo M-11
M.5.7 WPA 7 – South Coast M-15
M.5.8 WPA 8 – Huasna Valley M-22
M.5.9 WPA 9 – Cuyama Valley M-22
M.6 North County Water Suppliers **M-22**
M.6.6 WPA 10 – Carrizo Plain M-22
M.6.7 WPA 11 – Rafael/Big Spring M-23
M.6.8 WPA 12 – Santa Margarita M-23
M.6.9 WPA 13 – Atascadero M-24
M.6.10 WPA 14 – Salinas/Estrella M-28
M.6.11 WPA 15 – Cholame M-31
M.6.12 WPA 16 – Nacimiento M-31

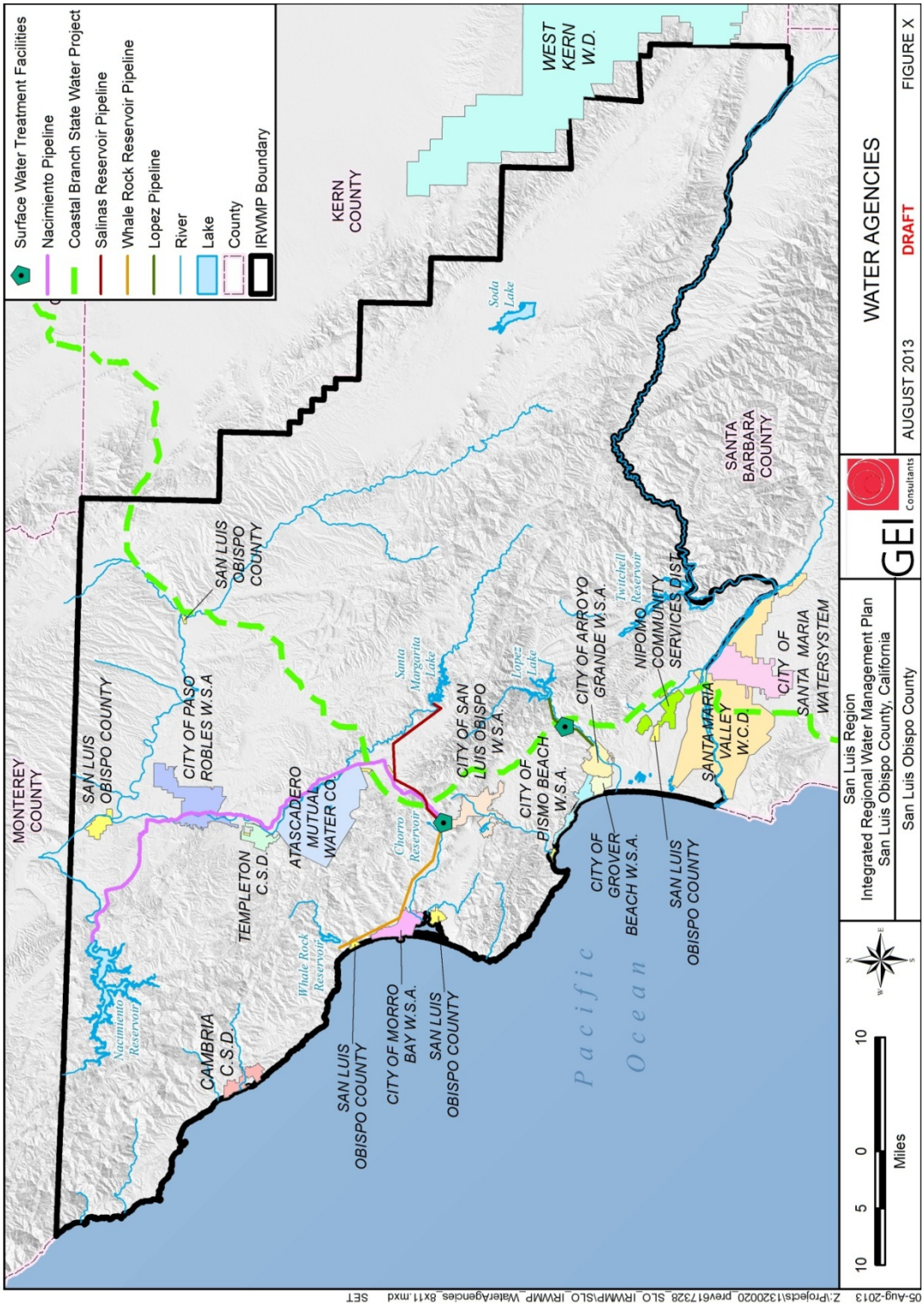


Figure M-1. Water Agencies

M.4 NORTH COAST WATER SUPPLIERS

M.4.6 WPA 1 – San Simeon

San Simeon Community Services District

The San Simeon Community Services District (San Simeon CSD) supplies its customers with domestic water service, wastewater service, and fire protection, among other services. San Simeon is located along Highway 1 north of Cambria. The San Simeon CSD serves an area of approximately 100 acres, which includes approximately 320 residential dwelling units and over twice that number of hotel/motel units. Though the permanent residential population is estimated at 247, the tourist population can outnumber locals and varies with the season.

The build-out population is projected to reach 740 residents. The build-out population is the upper range from the San Simeon Community Plan, which assumes 530 dwelling units (DU) and 1.4 persons per DU. The commercial/retail sector constitutes over 70 percent of the annual demand. Build-out water demand is based on 3,426 gpd/acre for the non-residential sector and 72 gallons per capita per day (gpcd) consumption for residents.

The San Simeon CSD depends on groundwater from the Pico Creek underflow. Though the State Board permits extraction of up to 140 AFY, groundwater studies indicate a safe yield of only 120 AFY, with 16 AFY used at Hearst Ranch. This leaves the San Simeon CSD with a safe yield of 104 AFY. The 2007 Water System Master Plan does not suggest future water supply alternatives, although historically San Simeon CSD has been water-short numerous times during dryer years. Because of the limitations and unreliability of the supply, a moratorium on development has been in place since 1991.

San Simeon CSD adopted an ordinance establishing a 3-stage conservation plan based on water supply conditions. The community has also gone through a retrofit program and the hotels and restaurants continuously have water conservation measures in place.

The San Simeon CSD plans to move forward with upgrading its wastewater treatment facility to use the treated effluent as recycled water. By July 2012, the facility will be producing Title 22 recycled water, but it will only be available to commercial trucks that connect to an on-site tank. The long-term plan is to construct a recycled water distribution system. Desalination or coordination with the Hearst Ranch on a groundwater source of supply to meet build-out needs are options under consideration.

Contamination of water supply wells due to seawater intrusion is a major water quality concern in the basin (Cleath, 1986). Lowering of groundwater levels below sea level in the basin during the summer months when creek flows are absent and pumping is active can result in the landward migration of the sea water/fresh groundwater interface. The landward flow of seawater into the estuary during winter high tides is also a contributing factor. Although seawater intrusion has increased salinity levels in groundwater pumped from local water supply wells, it has not degraded water quality to the point that the water is non- potable. The 2008 Consumer Confidence Report for two San Simeon CSD wells reported that measured concentrations of all analyzed contaminants were below their respective Maximum Contaminant Level (MCL) or Regulatory Action Level (AL) values.

M.4.7 WPA 2 – Cambria

Cambria Community Services District

The Cambria Community Services District (Cambria CSD) is an independent special district that provides water, wastewater, fire and other community services to its customers. Cambria is located is located along Highway 1, approximately 35 miles north of the City of San Luis Obispo.

Cambria's urban reserve line (URL) encompasses approximately 2,351 gross acres, with a net acreage of approximately 1,790 acres, not counting the land in the road rights of way and beach areas along the ocean. Cambria primarily consists of residential uses with combinations of commercial and public institutional uses along Main Street. The surrounding outlying areas are devoted to agricultural uses, primarily grazing.

Cambria's existing population is 6,284 residents and the build-out population ranges between 8,257 and 13,547 depending on assumptions. The current direction in Cambria is to plan for 7,719 (based on 4,650 dwelling units and 1.66 persons/DU). To meet current water demand, the Cambria CSD operates wells that draw from local groundwater aquifers along the San Simeon and Santa Rosa Creeks. Cambria CSD's water rights are subject to the regulatory authority of the State Board, and to a certain extent, conditions imposed under development permits issued by the California Coastal Commission (CCC). The current water rights diversion permits from the State Board allow Cambria CSD to pump a maximum of 1,118 acre-feet (AF) of water during the wet season, and 630 AF of water during the dry season , from both the San Simeon and Santa Rosa Valley Groundwater Basins. However, the current CCC Development Permit limits the total annual diversion from both creeks to no more than 1,230 AF of water. Additionally, the dry season date, duration, and beginning groundwater levels, limit the actual availability of groundwater from both basins. Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands.

To meet the additional water supply needs towards build-out and to increase water supply reliability, the Cambria CSD plans to construct a Seawater Desalination Plant to produce up to 602 AFY. This plant would operate during the dry season to augment supply during that period of high demand. A decentralized recycled water program is also planned, with an estimated 180 AFY made available for unrestricted irrigation use.

Historically, the Cambria CSD has used conservation as a means to extend its existing supplies. Since 1988, a plumbing retrofit program has required the installation of water efficient fixtures upon resale or remodel of a home. The program was expanded in 1990 to require water efficient fixtures for new construction and for existing buildings that require a new connection permit. Since that time, the Cambria CSD has initiated a number of other conservation measures, including rebate programs and plumbing requirements that have resulted in an estimated savings of 18.9 AFY.

In 1999, the Cambria CSD learned of an MTBE contamination plume that was spreading towards its Santa Rosa well field. As a result, its existing Santa Rosa well field was shut down and an emergency well and treatment plant were constructed further upstream. The new treatment plant provides filtering, disinfection, as well as the removal of iron and manganese. The adjustments made in well locations and the additional treatment provided for the Santa Rosa Creek well has resulted in delivery of water to customers that meet both primary and secondary drinking water standards.

M.4.8 WPA 3 – Cayucos

Cayuco Area Water Organization

The Cayucos Area Water Organization (CAWO) is made up of three member utilities and a cemetery district, the Morro Rock Mutual Water Company (Morro Rock MWC), the Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A) and Cayucos Cemetery District (CCD). CSA 10A operates a surface water treatment plant that delivers filtered and chlorinated water to the CAWO members. The three utility purveyors supply their customers with domestic water service, landscape irrigation and fire protection, among other services. The CCD uses the water for irrigation purposes.

M.4.9 WPA 4 – Morro Bay

Chorro Valley Water System

The California Men's Colony (CMC) is a state prison located on Highway 1 west of San Luis Obispo. The CMC operates its own water supply, treatment and distribution system for inmates

and staff. CMC also wheels water to Camp San Luis Obispo (National Guard), Cuesta College, County Operations Center (includes Fleet Services, Water Quality Laboratory, Juvenile Detention Center, County Jail, Office of Emergency Services), and County Office of Education. This system is also known as the Chorro Valley Water System.

City of Morro Bay

The City of Morro Bay provides water service to over 5,500 connections, including over 10,000 residents, businesses, industrial facilities, and public facilities. The population estimate in 2005 was 10,270 according to the 2005 Urban Water Management Plan (2005 UWMP). Its coastal location attracts a large number of tourists during the summer and on weekends. The motels, hotels, restaurants, State Parks, and other facilities serving the tourist population add a significant water demand to the local population living primarily in single-family residences. The 2005 UWMP assumed a build-out population of 12,900, estimated to be achieved in 2028.

The City has multiple sources of potable water. Two groundwater basins, the Chorro and Morro Valley Groundwater Basins, were used exclusively prior to the City's connection to the State Water Project. The City also operates a desalination plant and has mutual aid agreements with the California Men's Colony and the Whale Rock Commission for emergency supply.

The groundwater basins have encountered several water quality issues, including seawater intrusion, methyl tertiary butyl ether (MTBE) contamination, and excessive nitrates, forcing the City of Morro Bay to reduce extraction from groundwater sources. In addition, the State Board permitted allocation allows withdrawals from the Chorro Basin only when creek flows exceed 1.4 cubic feet per second (cfs). Nevertheless, strategic management of these sources should allow the City of Morro Bay to reliably extract 581 AFY from the Morro Basin and 566 AFY from the wells that penetrate the Chorro Basin, for a total of 1,147 AFY, even in dry years.

The City contracts with the District for 1,313 AFY of State Water. The City also has a Drought Buffer Water Agreement with the District for 2,290 AFY that will allow the City to receive its full 1,313 AFY allocation when the SWP can deliver at least 36.5 percent of contracted allocations (see SWP discussion). The City has been noted as being potentially interested in an additional 750 AFY of State Water and 1,500 AFY of Drought Buffer, should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

The SWP shuts down for annual maintenance activities each fall/winter during which the City has used its alternative supplies. In 2008, the SWP shutdown took place when groundwater quality issues were limiting the City's use of well water. The shortfall was made up for through an agreement with the California Men's Colony to provide the City with water during that period.

The desalination plant was constructed in 1993 as a secondary supply during a drought. It has been used intermittently since that time, but raw water quality problems have limited its use. Plans to modernize the desalination plant should restore capacity to 645 AFY. Future needs could be met by doubling the desalination plant's capacity.

Other potential future supplies include the jointly operated Morro Bay - Cayucos Sanitary District Wastewater Treatment Plant. The plant is slated for a major upgrade in 2014. Production of tertiary effluent will be provided, and thus will provide increased opportunity for future water recycling to augment water supplies.

Since the early 1990s, the City has implemented a rigorous water conservation program to promote more efficient use of existing water resources. The City is a member of the County's Partners in Water Conservation. The water conservation program has had a significant impact, reducing average per capita water demand from 154 to about 129 gpcd (141 gpcd in dry years) or 8 to 16 percent. As noted in the City's 2005 Sewer Collection System Master Plan Update, flows in 2005 were lower than in 1986, even with a 10 percent increase in population.

Elements of the conservation program include:

- Progressively tiered water rate structure
- Creation of a developer funded low-flow toilet retrofit program
- Adoption of multi-level drought response program with increasing limits on irrigation and non-essential uses of potable water
- Promotion of many of the Water Conservation BMPs to be pursued by all contractors of the State Water Project, including an ongoing rebate program for homeowner installation of water-efficient appliances.

As mentioned above, groundwater quality issues are an ongoing concern, but the City's ability to obtain water from multiple sources and to blend them as needed to meet State drinking water standards has lessened the concerns that water quality issues could hamper the City from meeting future water demands.

M.4.10 WPA 5 – Los Osos

Los Osos Community Services District

Los Osos Community Services District (Los Osos CSD) is a member of San Luis Obispo County's Partners in Water Conservation. In addition, the District employs many of the Best Management Practices (BMPs) established by the CUWCC. Some of these BMPs worth mentioning include: offering free plumbing retrofit kits, providing public information,

participating in grade school education programs, conducting water audits, and pricing water using a tiered rate structure.

S&T Mutual Water Company

S&T MWC serves 201 properties serves 201 properties of which 21 are vacant and use no water. In 2011 in order to reduce the consumption of water in its service area it installed water meters on each property. It has also adopted a tiered pricing structure in order to further reduce water consumption in its area.

Golden State Water Company – Los Osos

The Golden State Water Company (GSWC) provides water service to approximately 2,672 households in the unincorporated communities of Los Osos, Baywood Park, and Cuesta-by-the-Sea, located south of the City of Morro Bay. GSWC serves a historically rural population that has undergone little to no development since the mid- to late-1980s. GSWC currently uses groundwater for 100 percent of its supply. Groundwater is pumped from the Los Osos Groundwater Basin using four active wells. Litigation involving use of this groundwater basin, which began in 2004, resulted in an interlocutory stipulated judgment in 2008.

Because the groundwater basin is the only source of water in the area, its continued use faces two challenges requiring immediate action: water quality degradation of the Upper Aquifer, primarily by nitrate, and seawater intrusion into the Lower Aquifer, which is the principal source of supply. San Luis Obispo County is addressing degradation of water quality in the Upper Aquifer through construction and operation of the Los Osos Wastewater Project. The Los Osos Basin has been subject to a building moratorium since 1988. Upon completion of the wastewater project by the County, the moratorium may be lifted (subject to other resource issues such as water supply and habitat conservation).

Water quality will be collectively monitored as part of the requirements of the 2008 stipulation. However, wells have been monitored by individual entities, and as part of various investigations, for several decades. As a result, intrusion of seawater into aquifers supplying drinking water has been documented since the 1950s. One of GSWC's wells has already been deactivated due to seawater intrusion and water from another well is currently being treated for iron and manganese.

M.5 SOUTH COUNTY WATER SUPPLIERS

M.5.6 WPA 6 – San Luis Obispo

Cal Poly San Luis Obispo

Cal Poly receives water from the City water system. Though it does not treat its own water, available supply is governed by entitlements from surface water sources. Water demand includes extensive agricultural and landscape irrigation requirements. The supply and demand discussion below applies to the 1,321-acre campus area.

Cal Poly derives its water from groundwater sources and through surface water entitlements. For general use, the university owns entitlement to 33.7 percent of the storage capacity in Whale Rock Reservoir or approximately 13,707 acre-feet when the reservoir is full. Cal Poly's portion of the safe yield from the reservoir is calculated as 1,384 AFY, but diminishes approximately 2 AFY due to siltation. However, their allotment is based on volume and not on a flow rate, so Cal Poly is not bound by this limit. The City treats and delivers approximately 600 AFY to Cal Poly. The remainder is untreated water primarily used for agriculture and landscape irrigation, drawn directly from the Whale Rock raw water pipeline or from agricultural wells. The safe yield from groundwater is undocumented, but no decline in groundwater level has been noticed.

Future demands for domestic needs will be met by increasing the proportion of Whale Rock water treated by the City. Agricultural needs could be met in various ways, including increasing irrigation efficiency, withdrawing land from cultivation, using more groundwater, and other management practices.

Surface water from Whale Rock is considered to be of high quality. Groundwater quality has been generally good, though increases in nitrate levels have been measured in groundwater flowing through the aquifer as it passes under the Cal Poly campus.

Avila Beach Community Services District

The Avila Beach Community Services District (Avila Beach CSD) supplies its customers with domestic water service, wastewater service and fire protection, among other services. The water supply for the Avila Beach CSD is contracted through County Service Area 12 (CSA 12), and consists of both Lopez Reservoir (68 AFY) and State Water (100 AFY) allocations for a total supply of 168 AFY.

Water quality for both Lopez Lake and State Water treated sources meets both primary and secondary standards for drinking water, though regular monitoring of the treatment process is

necessary to make appropriate adjustments to account for seasonal changes in the quality of Lopez Lake water.

Avila Valley Mutual Water Company

Avila Valley Mutual Water Company (Avila Valley MWC) serves a small cluster of homes in the Avila Valley area. The service area is built out with a population of 65 residents (28 connections). The 2008 water demand was 32 AFY. Avila Valley MWC receives its water supply from surface sources. The Avila Valley MWC contracts with the District for a 20 AFY allocation of State Water and 60 AFY of Drought Buffer, which is distributed through Zone 3 facilities. 12 AFY allocation of Lopez Lake water procured from CSA 12, bringing its total supply to 32 AFY. The Avila Valley MWC also owns two wells for emergency backup purposes, but because of water quality issues, they are not used on a regular basis. Avila Valley MWC is interested in an additional 20 to 40 AFY of State Water if it becomes available.

The quality of Avila Valley MWC water is similar to others using water from Lopez Lake. Well water is of poor quality and would only be treated and used as an emergency backup in case of disruption to the surface supply.

San Miguelito Mutual Water Company

San Miguelito Mutual Water Company (San Miguelito MWC) serves the San Luis Bay Estates area in the community of Avila Beach. The 2008 population served was 1,385 (620 connections) and a build-out population of 2,100 (930 connections).

The San Miguelito MWC receives its water supply from both surface and groundwater sources. It contracts with the District for a 275 AFY allocation of State Water and 275 AFY of Drought Buffer, which is wheeled through Zone 3 facilities. Additional water is pumped from three local wells that draw water from the aquifer fed by San Luis Obispo Creek. The San Miguelito MWC's goal is to provide consumers with a 70/30 blend of surface/well water, but problems with the well system have limited its contribution to 10 to 20 percent in recent years.

With a fully functioning water supply system, the San Miguelito MWC has adequate supply to meet both existing and future water requirements. San Miguelito MWC has been noted as being interested in an additional 10 AFY of State Water if it became available.

Quality of San Miguelito MWC water is similar to others using water from Lopez Lake. Raw well water is treated for iron and manganese removal and mixed with Lopez Lake water prior to delivery.

County Service Area 12

County Service Area 12 (CSA 12) provides 61 AFY of Lopez Reservoir water to customers in the rural area east of Avila Beach and transfers up to 100 AFY of Lopez Reservoir water through its piping system to Port San Luis. Port San Luis currently uses only 35 percent (35 AFY) of that allocation. In addition, CSA 12 transfers water through its piping system to Avila Beach CSD, Avila Valley MWC, and San Miguelito MWC.

Water supplies for CSA 12 also include 7 AFY from the State Water Project allocated to the San Luis Coastal Unified School District. Entities within CSA 12 have been noted as being interested in an additional 30 AFY of State Water if it becomes available.

Port San Luis

County Service Area 12 (CSA 12) provides 61 AFY of Lopez Reservoir water to customers in the rural area east of Avila Beach and transfers up to 100 AFY of Lopez Reservoir water through its piping system to Port San Luis. Port San Luis currently uses only 35 percent (35 AFY) of that allocation.

City of San Luis Obispo

The City of San Luis Obispo is located in a coastal valley approximately 10 miles inland from the Pacific Ocean. Historically, the City of San Luis Obispo has been the sole water purveyor within its limits. This allowed the city to maintain uniformity of water service and distribution standards, and to be consistent in developing and implementing water policy. The City also serves the County Regional Airport and Cal Poly. Since Cal Poly has its own allocation of water from the Whale Rock Reservoir and has water resources that do not pass through the City's treatment plant, the University is discussed separately.

The City of San Luis Obispo has an existing (2010) population of 44,948 and a one percent residential growth cap which assists in projecting future annual water needs. The current General Plan estimates that the build-out population for the City will be approximately 57,200 people.

The City accounts for its water supplies by designating a portion of what is available for primary supply, reliability reserve and secondary supply. Primary supply is the average supply needed to meet build-out needs. Reliability reserve is a 20 percent buffer for future unforeseen or unpredictable long-term impacts to the City's available water resources such as loss of yield from an existing water supply source and impacts due to climate change. Secondary supply is the additional amount needed to supplement the primary and reliability supply to meet needs during short-term water supply shortages or peak demands.

The City of San Luis Obispo currently receives water from four sources; Salinas Reservoir (Santa Margarita Lake), Whale Rock Reservoir, local groundwater, and recycled water from the Water Reclamation Facility. The City has depended on imported supplies from Salinas Reservoir, located near the community of Santa Margarita, since 1944 and Whale Rock Reservoir, located near the community of Cayucos, since 1961. Whale Rock Reservoir provides water to the City of San Luis Obispo, California Poly, and the CMC as well as the members of CAWO in Cayucos. The safe yield from the Salinas and Whale Rock Reservoirs was 6,940 AFY in 2010, but siltation causes the yield to drop by approximately 10 AFY.

As a result of the onset of the drought in 1986, which lead to decreases in surface water supplies, the City activated its groundwater sources in 1989. The City currently uses a small amount of groundwater (~2 percent of total) for potable purposes, but does not count groundwater yield in its water supply portfolio. Even though the estimated safe yield of the basin is 2,000 AFY, nitrate and PCE contamination and drought make groundwater a less than reliable source.

The City of San Luis Obispo's Water Reclamation Facility (WRF) currently receives approximately 4.5 mgd (5,040 AFY) wastewater flows. The WRF provides tertiary treated effluent to an extensive recycled water distribution system that delivers recycled water to a number of customers in the southern area of the City, including Damon Garcia Sports Park, Laguna Golf Course, Laguna Middle School, Laguna Lake Park, and commercial centers such as Irish Hills Plaza. Currently, recycled water irrigation demand is 130 AFY, and the City anticipates customer demands to expand by 10 AFY to an anticipated maximum of 1,000 AFY. The City must also maintain stream flow to San Luis Obispo Creek, at a minimum average daily flow of 2.5 cfs (1.6 mgd, or 1,800 AFY). Effluent TDS quality of the recycled water is approximately 900 mg/L.

Future water sources include the Nacimiento Water Project, which is scheduled to go online in 2010/11, will supply up to 3,380 AFY to the City of San Luis Obispo. The City’s Water Reclamation Facility will deliver up to 1,000 AFY of recycled water for irrigation and other approved uses. The tertiary recycled water is suitable for most uses other than swimming and drinking.

In June 1985, the City Council adopted the Annual Water Operational Plan policy, which established a procedure to monitor the City's water supply situation on an annual basis. An integral component of the policy was the establishment of a water demand management or conservation program aimed at instituting corrective measures ahead of any projected water supply deficit to maintain a dependable supply during critically dry periods. Water demand management has played an ever increasing role in the overall water supply development and

management strategies since 1985. In 1990, the City adopted a multi- source water policy in an attempt to solve both short term water shortages and meet the City's long-term water needs.

The goal of the City's water conservation program is to make efficient use of its water resources to protect both short- and long-term water supply reliability. This is accomplished by implementing water-efficiency programs that are consistent with accepted best management practices and comply with any State-mandated water use reductions, and mandatory water conservation measures when the City's water supplies are projected to last three years or less. The City is a member of Partners in Water Conservation and the CUWCC.

Surface water from both reservoirs is considered to be of high quality. Groundwater quality has been generally good, but PCE contamination and occasional spikes in the nitrate content of well water has caused the City to provide additional treatment for individual wells or to take certain wells out of production.

M.5.7 WPA 7 – South Coast

Northern Cities Management Area

The Northern Cities Management Area (NCMA) includes the northernmost portion of the Santa Maria Valley Groundwater Basin. The cities of Arroyo Grande, Grover Beach, and Pismo Beach, the Oceano Community Services District, the County and local landowners that signed the court-approved stipulation during the Santa Maria Groundwater Basin litigation actively and cooperatively manage surface and groundwater resources in the NCMA.

Oceano Community Services District

The Oceano CSD provides water services to the community of Oceano. The service area encompasses approximately 1,150 acres. The Oceano CSD service area is located immediately south of Grover Beach and Arroyo Grande. Oceano CSD includes residential, commercial, industrial, agricultural, and public facility land uses. Existing population (as of July 2009) within the Oceano CSD service area is estimated at 8,137 and the forecast population is estimated at 12,855.

The Oceano CSD utilizes water from three sources, including groundwater, the State Water Project and Lopez Lake water. The groundwater allocation is limited to 900 AFY by agreement with the City of Arroyo Grande, the City of Pismo Beach, and the City of Grover Beach. As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be decreased at a future date.

Oceano CSD receives a 303 AFY allocation from Lopez Lake, subject to possible reduction if habitat requirements dictate. It also receives 750 AFY from the State Water Project, but no drought buffer. Therefore, the assumption that contractors will receive 66 percent of their State Water Project allocation reduces this supply to 495 AFY. Participation in the District's drought buffer program for State Water would improve water supply reliability for the Oceano CSD.

As discussed above for the City of Arroyo Grande, Oceano CSD entered into an interim water supply agreement, for delivery of up to 100 AFY of Oceano CSD water to Arroyo Grande. Oceano CSD will deliver up to 100 AFY of groundwater and/or State Water, at Oceano CSD's discretion. This temporary agreement ends in 2014.

In reviewing the CCR for 2008, the Oceano CSD continues to meet all Federal and State Drinking Water Standards. Selenium levels continue to be high, from two of their existing wells (Wells 4 and 5); however, drinking water standards are met through blending with other water sources.

Seawater intrusion has been measured in two coastal monitoring wells in the Oceano area. The rains of 2010-2011, and reduced groundwater production, pushed back the subterranean ocean interface, but the close proximity of that interface creates supply uncertainties.

City of Pismo Beach

The City of Pismo Beach supplies its customers with domestic water service. The dominant economic activity in Pismo Beach is tourism, and as a result, the population of Pismo Beach can more than double during summer holidays. The 2010 population was 7,676 and the forecast build-out population is 11,854.

The City receives water from three water sources: local groundwater, Lopez Reservoir and the State Water Project. 700 AFY local groundwater is extracted from the Arroyo Grande Plain, which is part of the Santa Maria Valley Groundwater Basin. Extraction rights are shared by agreement with the City of Arroyo Grande, the City of Grover Beach, and the Oceano Community Services District (Oceano CSD). As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be increased or decreased at a future date.

Pismo Beach receives 896 AFY from the Zone 3 Lopez Project as a contractual supply. Environmental protection issues may call for increased or decreased releases to Lopez Creek, potentially reducing or increasing the allotment available for Pismo Beach and other cities. Pismo Beach also receives 1,240 AFY from the SWP via contract with the District and delivery through Zone 3 facilities. The City also has a 1,240 AFY Drought Buffer allocation.

Future water supply possibilities may include additional State Water supplies, tertiary treatment/reuse of wastewater, and extraction from local groundwater basins. Pismo Beach, in coordination with the NCMA, is also investigating the feasibility of increasing the safe yield of Lopez Reservoir. The City of Pismo Beach 2010 UWMP states that the City of Pismo Beach is "committed to employ recycled water as a beneficial resource to protect and reduce consumption of its potable water resources" and that "the City may begin regional planning efforts regarding recycled water within the next five years." Pismo Beach has been noted as being interested in an additional 500 AFY of State Water and 1,500 AFY of Drought Buffer if it becomes available.

City of Arroyo Grande

The City of Arroyo Grande supplies its customers with domestic water service. Arroyo Grande is located in the southern portion of San Luis Obispo County along the banks of the Arroyo Grande Creek. Land use is primarily residential and agriculture with a small commercial sector. There are no agricultural or industrial water service connections. In 2010, the service population was 16,901 and the forecast build-out population is 20,000.

Arroyo Grande has agreements in place to deliver up to 3,813 AFY from three water sources: two groundwater basins and Lopez Reservoir. Arroyo Grande's share of groundwater extracted from the Arroyo Grande Plain (which is part of the Santa Maria Valley Groundwater Basin) is 1,323 AFY (including 121 AFY of agricultural land conversion credit). Entitlement rights are shared by agreement with the City of Pismo Beach, the City of Grover Beach, and the Oceano CSD. As is the case with all parties to the Santa Maria Groundwater litigation judgment, these extraction rights may be increased or decreased by action of the courts.

Arroyo Grande extracts 160 AFY of groundwater from the Pismo Formation, which is outside of the NCMA and not subject to management agreements. Its contractual supply of Zone 3 Lopez Project water is 2,290 AFY. The habitat conservation plan and water availability analysis currently being prepared may adjust the downstream release from the dam but will not affect contracted delivery. Arroyo Grande is currently using between 75 – 80 percent of its current supply entitlement.

Future water supply possibilities include recycled water, supplemental State Water, and increased Lopez entitlement. Arroyo Grande is committed to participating in a regional effort to utilize recycled water, and will continue to participate in a dialogue between regional agencies interested in a recycled water program (including but not necessarily limited to the NCMA agencies).

Groundwater quality varies by depth and source. Water extracted from the Pismo Formation receives manganese/sulfuric acid treatment prior to delivery. The City delivers water that meets drinking water standards.

City of Grover Beach

The City of Grover Beach supplies its customers with domestic water service. Grover Beach is primarily a residential community, with a small commercial/industrial sector. Approximately 80 percent of the water consumers are residents. No agricultural consumers are served by the City water system, though landscape irrigation consumes approximately 90 AFY. In 2010, the population was 13,156. The build-out population is expected to reach 15,000.

Grover Beach receives water from Lopez Lake and also uses groundwater from four municipal wells and one irrigation pump. The Zone 3 Lopez Project provides a contractual supply of up to 800 AFY to Grover Beach.

Three shallow wells draw water from the Paso Robles formation and a fourth well draws water from the deeper Careaga formation. Extraction rights are shared by agreement with the City of Arroyo Grande, the City of Pismo Beach, and the Oceano CSD. The City of Grover Beach is currently entitled to 1,407 AFY from this source per the agreement. This includes a 209 AFY allocation from an Agricultural Land Conversion Credit. As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be decreased for both of these allocations at a future date.

Two hundred twenty-five AFY of non-potable groundwater is pumped from irrigation wells used on the State Parks Department golf course and a large park within the City. Grover Beach had a temporary transfer agreement with Oceano CSD that allowed the City to purchase up to 100 AFY, but this agreement expired.

Potential future water supply sources under consideration include desalination, State Water and recycled wastewater.

Lopez Lake water has seasonal quality fluctuations that must be addressed by adjusting treatment methods. The ground water from the Paso Robles formation meets all state and federal standards except for nitrate concentration. Grover Beach completed construction of an ion exchange water treatment plant designed to remove nitrates from the shallow well water in 1989.

Nipomo Mesa Management Area

The Nipomo Mesa Management Area (NMMA) lies to the south of the NCMA and includes ConocoPhillips, Golden State Water Company, Nipomo Community Services District, Woodlands Mutual Water Company, Rural Water Company, and other NMMA overlying landowners that signed the court-approved stipulation during the Santa Maria Groundwater Basin litigation. The NMMA Technical Group is charged with developing the technical bases for sustainable management of the surface and groundwater supplies available in this management area.

Golden State Water Company – Nipomo

The Golden State Water Company (GSWC) provides water service to approximately 1,475 households on the south side of Nipomo. GSWC serves a rural population that is undergoing development and is expected to grow at a projected rate of 1.42 percent over the next two decades until build-out.

GSWC currently uses groundwater for 100 percent of its supply. Groundwater is pumped from the Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin using five active wells. Litigation involving use of this groundwater basin, which began in 1997, has resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. In addition, the stipulated judgment required GSWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY. Once the supplemental water system is in place, GSWC will be required to purchase 8.33 percent (208.25 AFY) of that supply.

Water quality is formally monitored as part of the requirements of the NMMA stipulation. Wells are monitored regularly and reported publicly. The 2009 NMMA report has concluded that there is no evidence of seawater intrusion into the NMMA portion of the groundwater basin. Localized areas of the NMMA have reported nitrate concentrations as high as 90 percent of the MCL. Three of the GSWC wells are currently being treated for iron and manganese.

Nipomo Community Services District

The Nipomo Community Services District (Nipomo CSD) provides water service to approximately 12,000 residents. Development is expected to continue to expand in the future, more than doubling water demands at build-out.

Nipomo CSD currently uses groundwater for 100 percent of supply requirements. Groundwater is pumped from the Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin, using eight active wells and one standby. Litigation involving use of this groundwater basin, which began in 1997, resulted in stipulations and judgments in 2005 and

2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. The stipulation also requires the Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY.

The Nipomo CSD has investigated multiple sources of supplemental water and, as a result, signed an agreement with the City of Santa Maria to pursue an intertie project. The January 5, 2010 Wholesale Water Supply Agreement established the basis for purchase and delivery of water from the City to the Nipomo CSD. The project EIR has been certified, and the project is going through its final design stages. If constructed, it will be capable of delivering up to 3,000 AFY and could be completed in two and a half years. Once the supplemental water system is in place, Nipomo CSD will be required to purchase 2,167 AFY of that supply. Three other water purveyors, Woodlands MWC, Golden State Water Company, and Rural Water Company will share in the project costs and will together receive one-third of the mandated minimum water delivery (833 of 2,500 AFY). The additional 500 AFY capacity has been reserved for use by the Nipomo CSD for infill but no annexations or General Plan Amendments. Additional water via the City of Santa Maria (if possible), desalination and recycled water are also being considered as a long-term alternative source for the Nipomo CSD and others in the region.

Water quality discussion is similar to that described for GSWC. Also, there is a concern that nitrate levels are increasing in wells near the Southland WWTF. Though studies have not tied this increase to current effluent disposal practices, the WWTF is investigating alternative effluent disposal methods that will enhance groundwater recharge without increasing nitrate levels.

Rural Water Company/ Cypress Ridge Sewer Company

Rural Water Company (RWC) provides water to consumers on the northwest side of the Nipomo Mesa, including Cypress Ridge, a planned development consisting of approximately 380 homes and a golf course. RWC serves a residential community that includes both densely spaced homes and numerous large lot rural residences. Non-potable water for the Cypress Ridge Golf Course is pumped by golf course wells to supplement irrigation from recycled wastewater. The golf course is irrigated partially by effluent from the Cypress Ridge Wastewater Treatment Facility (Cypress Ridge WWTF), which in turn uses some of the golf course water features as finishing ponds in the waste treatment process.

RWC currently uses groundwater for 100 percent of supply requirements. Groundwater is pumped from the larger Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin, using several active wells. Litigation involving use of this groundwater basin, which began in 1997, resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be

affected at a future date. The stipulation requires RWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY. Once the supplemental water system is in place, RWC will be required to purchase 8.33 percent (208.25 AFY) of that supply. The Cypress Ridge WWTF currently produces about 50 AFY of irrigation quality effluent, which is used on the golf course.

Water quality discussion is similar to that described for GSWC.

Woodlands Mutual Water Company

The Woodlands is a relatively new housing and commercial development located on the Nipomo Mesa in southern San Luis Obispo County. The Woodlands Mutual Water Company (Woodlands MWC) was organized to provide water to customers within the Woodlands development. The Woodlands MWC currently supplies its customers with domestic water service and wastewater reclamation.

The Woodlands has a tentative map allowing for 1,320 residential units, plus additional commercial facilities. Currently, there are 685 residential lots that have been recorded in final maps. Commercial facilities for the golf course are also constructed at this time. Other facilities that may be constructed in the future include commercial facilities at the business park, a hotel, and a possible school. The planned development also currently has an 18- hole golf course and a smaller 12-hole executive course. The on-site wastewater treatment plant provides the golf courses with recycled water for irrigation; however, the golf courses are also supplemented with groundwater. Another 18-hole golf course is planned for the future, which will be irrigated with groundwater.

Currently, the Woodlands MWC relies on groundwater as the sole source of water. The Woodlands MWC owns and operates four wells, three of which produce potable water and the fourth serves irrigation needs. Groundwater is pumped from the larger Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin. Litigation involving use of this groundwater basin, which began in 1997, resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. The stipulation requires Woodlands MWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY.

Woodlands MWC has agreed to purchase a portion of the NMMA supplemental water (determined according to the percentage of completion of the project and rising to a total of 417 AFY at such time as its service area is fully developed). Woodlands MWC has also agreed to pay a portion of the operating costs, capital costs and replacement costs of the project based on the amount of water purchased by Woodlands MWC relative to the total amount purchased

from the City of Santa Maria. Woodlands MWC also has the right to exercise an option for an additional 300 AFY from the Nipomo supplemental water project at a future date.

Twenty-four AFY of recycled water was used in 2008 to partially irrigate the golf course. As more residential units are completed, increased quantities of wastewater will be available for recycling. The build-out flow of the WWTP is 774 AFY. Well water will continue to be required during periods in which the recycled water available is less than the golf course demand.

Water quality discussion is similar to that described for GSWC. The most recent Consumer Confidence Report indicated that Woodlands MWC supplied water that met both primary and secondary drinking water standards. One of the wells exceeds the standards for iron, but mixing with water from other wells produces water that meets the iron standard.

Conoco Phillips

ConocoPhillips uses water for industrial operations at its refinery on the Nipomo Mesa. Water demand has decreased in recent years due to infrastructure changes resulting in more water-efficient operations. Planned expansion will increase water demand, but demand will remain less than historical peak pumping rates.

ConocoPhillips uses groundwater for 100 percent of supply requirements. Though it is a party to the Santa Maria Groundwater stipulation, it is not required to participate in the development of supplemental water. It has rights to reasonable and beneficial use of groundwater without limitation, except in the event of a severe water shortage, as defined in the stipulation.

Water quality discussion is similar to that described for GSWC. One of the ConocoPhillips wells reported a high (1,000 mg/L) TDS value. The well is used for industrial processing.

M.5.8 WPA 8 – Huasna Valley

There are no large water suppliers within WPA 8.

M.5.9 WPA 9 – Cuyama Valley

There are no large water suppliers within WPA 9.

M.6 NORTH COUNTY WATER SUPPLIERS

M.6.6 WPA 10 – Carrizo Plain

There are no large water suppliers within WPA 10.

M.6.7 WPA 11 – Rafael/Big Spring

There are no large water suppliers within WPA 11.

M.6.8 WPA 12 – Santa Margarita

County Service Area 23

County Service Area 23 (CSA 23) provides water service to the community of Santa Margarita. CSA 23 supplies the community with water via groundwater wells located in the center and south-eastern corner of the community. The community is completely reliant on groundwater for its supply.

In 2009, the CSA served a total of 525 connections, predominantly residential. Future build- out is estimated to be 619 connections. CSA 23 receives its water supply from two wells; Well No. 3 and No. 4. Well No. 3 is a deep, fractured-rock well and Well No. 4 is a relatively shallow well that pumps from the alluvial deposits of Santa Margarita Creek. Two other wells, No. 1 and No. 2, are near No. 4, but are not built to current health standards, and can only be used in an emergency with a boil water order.

During periods of low seasonal rainfall, water level in the shallow well typically drops, triggering various voluntary conservation methods. Although the community is better than 85 percent built out according to the current general plan, there is concern that existing groundwater supplies may not be adequate to supply additional residents and that they are inadequate during periods of less than normal rainfall. There is also the concern that the reliance on essentially a single supply source (groundwater) may be placing the community in a tenuous public health and safety position.

The 2003 Master Plan recommended securing an additional 100 AFY of reliable supply. Based on community input, concerns over cost and need, CSA 23 is currently investigating several options to secure an additional source of water to be used only during a drought or other emergency. These include State Water, Lake Nacimiento water or additional groundwater wells. Any one of these sources could potentially supply water demand at build-out given the community's support.

CSA 23 has been able to deliver water that meets State Drinking Water Standards.

Santa Margarita Ranch

The existing Ranch water use is estimated at 1,621 AFY based on land use water factors. Planned expansion of orchards and vineyards will increase water use to 4,263 AFY. The proposed development's EIR states that the ARCS would increase water demand by 161 AFY. Implementation of the FDP would add an additional 1,466 AFY of demand. Based on these values, the total build-out demand is 5,890 AFY.

Existing Santa Margarita Ranch water demands are supplied entirely by groundwater. The Ranch property is currently served by approximately 27 wells, located primarily along the east side of the Ranch, west of West Pozo Road. Individual well yields typically range between 200 and 400 gpm with some wells capable of rates of up to 1,000 gpm. Supplemental water supply options for Santa Margarita Ranch are State Water and Nacimiento water.

Environmental water requirements may limit the use of groundwater to meet the needs of expanded agricultural production and eventual residential development. Trout and Rinconada Creeks, which are upper tributaries of the Salinas River, are important spawning habitat for steelhead, a federally declared endangered species. The National Marine Fisheries Service (NMFS) has previously received complaints that the creeks have allegedly been dewatered as a result of vineyard development on Ranch property.

TDS concentrations in wells in the area are relatively high. Nitrates have measured concentrations below the MCL of 45 mg/L. Total coliform, fecal coliform, and Escherichia coli data have been found to be suggestive, although not conclusive, of small impacts on both shallow and deep aquifer wells from local wastewater disposal systems.

M.6.9 WPA 13 – Atascadero

Garden Farms Community Water District

The Garden Farms Community Water District (Garden Farms CWD) provides water to consumers in and around the unincorporated community of Garden Farms, located along the old El Camino Real between Santa Margarita and Atascadero. Garden Farms is a small residential community of 240 residents with 113 water service connections. Besides two small commercial establishments, all connections are residential.

Demand has fluctuated between 48 and 93 AFY over the past four years. The service area is fully built out. Garden Farms CWD draws all of its supply from three wells (though the third well is rarely used) which tap the Atascadero Groundwater Sub-basin. Water levels have dropped several feet in the past year, likely due to the ongoing drought in the region.

Groundwater quality is typical for the sub-basin, with no contaminants exceeding the primary drinking water standards. High levels of manganese (70 ppb reported in 2007) have been detected, but do not currently exceed the secondary drinking water standard of 50 ppb.

Templeton Community Service District

The Templeton Community Services District (Templeton CSD) supplies its customers with domestic water service. Templeton is an unincorporated community located along Highway 101 between the City of Paso Robles and City of Atascadero. Templeton consists of a mix of residential, commercial, agriculture, and recreational areas. The Templeton area has a number of homes on larger lots, and thus exhibits a relatively large per capita water demand as a result.

Population projections are based on only those areas served by, and within, the Templeton CSD service area boundary. Thus, there will likely be discrepancies between these projections and those provided by the County or census data. The existing service area population was estimated at 6,417 persons. Based on the 2005 estimated population of 6,417 persons determined by the Templeton CSD's water service connections, plus 2,180 persons from the commercial mixed-use component, and an additional 900 persons from the residential component, the Templeton CSD's estimated build-out population (within its existing service area boundary) is 9,497 persons.

The Templeton CSD depends on water from eleven wells that extract water from two groundwater sources: the Paso Robles Formation and the Salinas River Underflow. Nine of the eleven wells that extract water from the Paso Robles Formation are extracting from the Atascadero Groundwater Sub-basin.

The Templeton CSD currently is permitted to extract 500 AFY from the Salinas River Underflow between October 1 and April 1. Two wells tap this aquifer, though only the Smith Well is in service. The Templeton CSD may request from CDPH an extended permit to continue to pump from the river wells through May 15 if sufficient water is available and flowing during that time.

An additional source of water for Templeton CSD comes from their re-use program with disposal of treated wastewater effluent from the Meadowbrook WWTP percolation ponds. This program allows the Templeton CSD to percolate treated effluent into the groundwater basin/Salinas River Underflow and subsequently extract the same amount of water 28 months later. According to the 2005 Water Master Plan, wastewater flow to the Meadowbrook WWTP at that time was 148,000 gpd (165 AFY) with 30 AF being used to irrigate an alfalfa field. Therefore, the Templeton CSD at that time had been withdrawing approximately an additional 135 AFY from the Salinas River allocation (above the 500 AFY permitted Salinas River underflow).

Future water supply for the Templeton CSD will likely come from the Nacimiento Water Project (NWP). The Templeton CSD is under contract to receive 250 AFY from the NWP. Templeton CSD plans to receive raw water from the NWP and percolate this water into the Salinas River Underflow, in a similar manner that they percolate effluent from the Meadowbrook WWTP percolation ponds (Selby Pond site). This 250 AFY of percolated NWP water will then be extracted from the Templeton CSD's downstream potable water well field. In addition, the Templeton CSD might divert additional wastewater flows to the Meadowbrook WWTP (which currently flow to the City of Paso Robles WWTP), which will allow them to increase percolation into and extraction from the Salinas River Underflow by as much as 343 AFY. These future water supply provisions are referenced in the 2005 Water Master Plan, and are included as recommendations for future water supply.

Based on the 2005 Water Master Plan, and review of current consumer confidence reports (CCRs), the Templeton CSD's water supply to its customers meets all water quality standards. In general, the river wells have lower total dissolved solid levels than the Atascadero Groundwater Sub-basin; however, all of the wells are below the upper limits of the drinking water standard of 1,000 mg/L. The Templeton CSD's overall aggregate TDS quality to its customers, as reported in the 2004 CCR, was 653 mg/L. This is based on how the Templeton CSD distributes and blends the various water supplies to its customers.

Atascadero Mutual Water Company

The Atascadero Mutual Water Company (Atascadero MWC) is a corporation organized under the laws of California for providing water service to property owners, known as the shareholders, within a geographical service area. Atascadero MWC supplies its customers with domestic water service and fire protection. Atascadero MWC's service boundary includes the City of Atascadero limits and some unincorporated areas (e.g. communities such as the Eagle Ranch Property, the West San Marcos Development, and the area south of Santa Rosa Road known as the Random Oaks area). In 2008, the Atascadero MWC served a population of 30,595 with 10,505 service connections. The Atascadero MWC projects a 2030 population of 37,436.

The City of Atascadero is located along Highway 101, between the City of Paso Robles and City of San Luis Obispo. The City of Atascadero consists of a mix of residential, commercial, agriculture, and recreational areas. Eagle Ranch, a large proposed development on the southwest side of the City of Atascadero, is only partially within Atascadero MWC's service area boundary. Atascadero MWC will serve the existing portion of the development within its boundary and another small portion proposed for inclusion. Adequate water supply for all of Eagle Ranch has yet to be confirmed.

According to Atascadero MWC records and demand forecasts, average annual per capita demand has fluctuated in the range of 188 to 213 over the past decade, with lower water use possibly linked to mandatory conservation measures. It is anticipated that water conservation programs will cause lower per capita demands to become the rule rather than the exception. A per capita demand of 199 gpcd is used to estimate a future peak demand of 7,600 AFY in 2019 with a population of 34,016. Thereafter, conservation measures are predicted to more than compensate for population growth, resulting in a build-out demand of 7,511 AFY in 2030 for a population of 37,436.

The Atascadero MWC's water source is the Atascadero Groundwater Sub-basin (of the Paso Robles Groundwater Basin) and Salinas River Underflow. Water is pumped from 17 active wells with two additional wells on standby status. Atascadero MWC derives approximately half of its supply from the Atascadero Groundwater Sub-basin, with the remainder coming from the Salinas River Underflow. Atascadero MWC has rights to 3,372 AFY from the Salinas River Underflow. As the Salinas River Underflow is more sensitive to rainfall, during dry years the proportionate withdrawal from the deeper Atascadero Groundwater Sub-basin increases.

The current water supply system is under stress due to the ongoing drought. During the spring of 2009, the Atascadero MWC issued a stage 2 water shortage condition alert when reserve production capacity fell to less than 10 percent of the maximum day demand. Stage 2 mandatory conservation measures include a ban on daytime landscape watering, required alternate irrigation schedules, and a prohibition of irrigation runoff.

The Atascadero MWC is a major partner of the Nacimiento Water Project, having contracted for a 2,000 AFY allotment of this future supply. The water will be used to recharge the groundwater table in the vicinity of the deep wells that pump from the Atascadero Groundwater Sub-basin. The Atascadero MWC is also exploring the expansion of its current well fields.

Atascadero MWC continues to aggressively promote water conservation, as it has since 1993. Atascadero MWC's program has reduced per capita indoor water use and the use of potable water for landscape irrigation. Atascadero MWC provides educational resources on its website, in its offices, and in periodic brochures included with water bills. In 1997, Atascadero MWC signed a memorandum of understanding (MOU) with the California Urban Water Conservation Council (CUWCC) and continues to implement and meet the goals of Best Management Practices for water conservation, including:

- Conservation Rate Structure (i.e. Tier Water Rates)
- Turf conversion rebates
- Lawn aeration rebates
- Sprinkler nozzle replacement rebates

- Irrigation controller rain sensor rebates
- Weather based irrigation controller and soil moisture sensor rebates
- Rainwater harvesting system rebates
- High efficiency clothes washing machine rebates
- High efficiency toilet rebates
- School education programs
- Free seminars on water conserving landscape design and plant selection
- Free landscape/home water surveys
- Annual Water-Conserving Landscape awards

Atascadero MWC is also a member of the Groundwater Guardian Program, Alliance for Water Efficiency, Water Education Foundation, and San Luis Obispo County Partners in Water Conservation.

Atascadero MWC's water supply to its customers meets all primary and secondary water quality standards.

M.6.10 WPA 14 – Salinas/Estrella

San Miguel Community Service District

The water supply for the San Miguel CSD is obtained solely from groundwater pumping of the Paso Robles Formation. There are three wells within the district; the two primary wells are Well No. 3 and Well No. 4. Well No. 5, a smaller well, historically exhibited high nitrate levels and was removed from service. In 2007, the District replaced Well 5 with a new well in the same location, but installed it deeper (approximately 800 feet). This new well has experienced occasional high nitrate concentrations and possibly high arsenic concentrations. This new well is temporarily out of service while the district conducts further evaluation.

The presence of gross alpha emitters approaching the MCL in the San Miguel water supply is of growing concern. The presence of gross alpha emitters is from naturally occurring decay of Uranium-238 and Thorium-232. The two main wells have shown increasing levels of gross alpha particles through the years, although the average is currently below the proposed MCL. Several of these samples indicate gross alpha levels that exceed the proposed MCL of 15 pCi/L.

Camp Roberts

Camp Roberts water supply is from groundwater pumping, with three active wells. TDS and arsenic levels in the groundwater are marginal. According to 2001 reports, the TDS concentration was about 900 mg/L. Also, the arsenic levels in 2001 were noted to be 9.6 µg/L, just below the MCL of 10 µg/L.

County Service Area 23 (Shandon)

County Service Area 23 (CSA 23) provides water service to the community of Santa Margarita. Santa Margarita has a population of approximately 1,400 and covers an area of approximately 265 acres. CSA 23 supplies the community with water via groundwater wells located in the center and south-eastern corner of the community. The community is completely reliant on groundwater for its supply.

In 2009, the CSA served a total of 525 connections, predominantly residential. Future build- out is estimated to be 619 connections. CSA 23 receives its water supply from two wells; Well No. 3 and No. 4. Well No. 3 is a deep, fractured-rock well and Well No. 4 is a relatively shallow well that pumps from the alluvial deposits of Santa Margarita Creek. Two other wells, No. 1 and No. 2, are near No. 4, but are not built to current health standards, and can only be used in an emergency with a boil water order.

During periods of low seasonal rainfall, water level in the shallow well typically drops, triggering various voluntary conservation methods. Although the community is better than 85 percent built out according to the current general plan, there is concern that existing groundwater supplies may not be adequate to supply additional residents and that they are inadequate during periods of less than normal rainfall. There is also the concern that the reliance on essentially a single supply source (groundwater) may be placing the community in a tenuous public health and safety position.

The 2003 Master Plan recommended securing an additional 100 AFY of reliable supply. Based on community input, concerns over cost and need, CSA 23 is currently investigating several options to secure an additional source of water to be used only during a drought or other emergency. These include State Water, Lake Nacimiento water or additional groundwater wells. Any one of these sources could potentially supply water demand at build-out given the community's support.

CSA 23 has been able to deliver water that meets State Drinking Water Standards.

City of Paso Robles

The City of Paso Robles has historically relied upon local water supplies from the Salinas River Underflow and from the Paso Robles Formation (which is part of the Paso Robles Groundwater Basin) for its municipal water supply. The deeper Paso Robles Formation currently contributes 2,856 AFY to City supply. The City plans to maintain this extraction rate in the future. Salinas River Underflow refers to shallow subterranean flows in direct connection with the Salinas River. This underflow is subject to appropriative water rights and permitting by the State Water Resources Control Board (State Board). An approved State Board application allows the City to

extract up to 8 cfs (3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31).

The City participates in the Paso Robles Groundwater Basin Agreement (Agreement) with the District, CSA 16 – Shandon, San Miguel CSD, and approximately 20 landowners that have organized as the Paso Robles Imperiled Overlying Rights (PRIOR) group. Key elements of the Agreement are a clear acknowledgement that the Paso Robles Groundwater Basin is not in overdraft now, and that the parties will not take court action to establish any priority of groundwater rights over another party as long as the Agreement is in effect. In addition, the parties agree to participate in a meaningful way in groundwater management activities, and to develop a plan for monitoring groundwater conditions in the groundwater basin.

To assure its water supply into the future, the City of Paso Robles will purchase water from the Nacimiento Water Project, which is projected to deliver 4,000 AFY of raw water. The City is progressing with its plans for a water treatment plant. In November 2011, the City Council authorized the implementation of a plant capable of treating 2,000 AFY of NWP water. This phase should be completed by 2015/16. The City will have the option of increasing its allotment of Nacimiento water to 8,000 as demand increases.

Another supply alternative being pursued by Paso Robles is the use of recycled wastewater. The City owns its own wastewater treatment plant, which currently provides secondary treatment. Several alternatives have been studied to upgrade treatment to the tertiary level, and it is assumed that one of these alternatives will eventually be pursued. 5,000 AFY of wastewater could ultimately be treated, but only 944 AFY would be needed to meet build-out demand. This margin of safety serves as a backup source in case of limitations on any of the other sources of supply.

The City has implemented a number of mandatory water conservation measures that were in force throughout the water service area. They include mandatory recycling or recirculation of water for car washes, cooling systems, and decorative fountains and several other practices designed to curb water waste. In the summer of 2011, the City lifted many of the mandatory requirements. Paso Robles is also a member in the San Luis Obispo County Partners in Water Conservation.

The City has targeted landscape irrigation as the water use practice with the highest potential for water conservation. Educational resources are available on the City website, in City offices, and in periodic brochures included with water bills. The City also sponsors a school education program that includes water conservation as a key component.

In general, City water quality is good, but has relatively high TDS and hardness. With regard to regional groundwater quality, the Estrella subarea of the Paso Robles Groundwater Basin is characterized locally by increasing TDS, chloride and nitrate concentrations. These adverse water quality trends are unlikely to affect the City's water supply in the near future, given that groundwater currently provided by the City meets all drinking water standards and the increases in TDS, chloride and nitrate are localized. Nonetheless, salt loading to the groundwater basin is an important long-term concern. Recognizing that the City's wastewater disposal is one source of salt loading, the Paso Robles has made the reduction of salt loading one of their water resource goals. Major means to reduce salt in the city wastewater include planned use of high-quality Lake Nacimiento supply, reduced use of home water softeners, strategic use of wells with lower salt concentrations, and implementation of an industrial waste discharge ordinance.

M.6.11 WPA 15 – Cholame

There are no large water suppliers within WPA 15.

M.6.12 WPA 16 – Nacimiento

Nacimiento Water Company

The Nacimiento Water Company (NWC) serves the community of Oak Shores, which is on the banks of Nacimiento Lake. The NWC currently serves a population of 275 residents with water drawn from the lake, which is then treated prior to distribution. Plans to develop an additional 345 lots as part of Oak Shores Estates are currently on hold. The water supply allocation for Oak Shores is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area.

Heritage Ranch Community Service District

The Heritage Ranch Community Services District (Heritage Ranch CSD) was formed in 1990 to oversee water and sewer services for the Heritage Ranch community. It supplies its customers with domestic water service. Heritage Ranch is an unincorporated community located on the east side of Lake Nacimiento, approximately 15 miles northwest of the City of Paso Robles. Land use at Heritage Ranch consists mostly of residential, recreational, and open space areas with some commercial and public facility areas. A community that was originally started as a remote vacation destination with the vast majority of part-time residents has now become a bedroom community to neighboring cities with full-time residents.

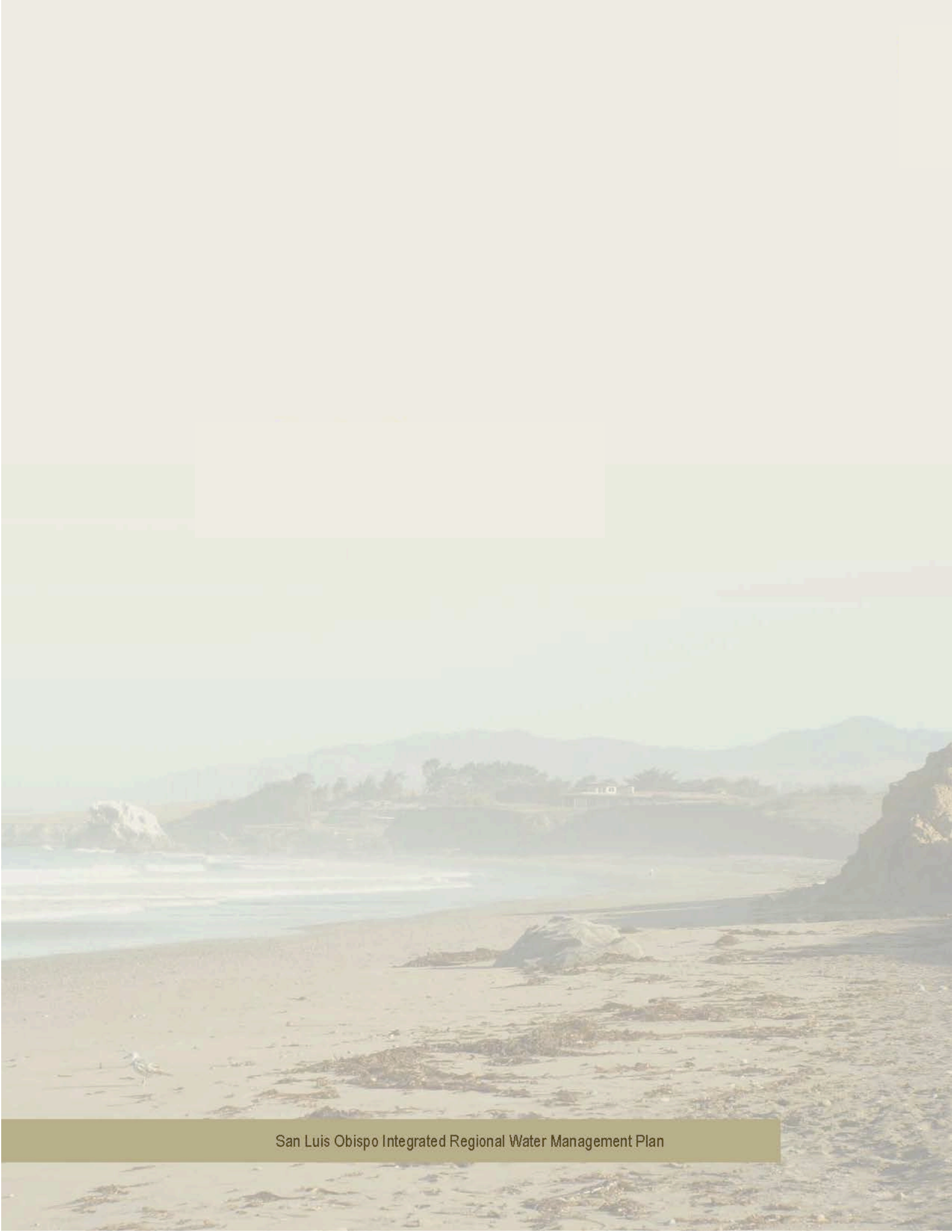
As of September 2010, the Heritage Ranch CSD serves approximately 1,778 water customers. Based on a density of 2.0 persons per household, this equates to an existing population of

approximately 3,556 persons. The Adopted Specific Plan for the Heritage Ranch CSD, prepared in 1972 and revised in 1980, limited the total number of developable units to 4,000. In 2004, the maximum number of developable units was revised a second time to its current maximum value of 2,900 units. Based on the average household size of 2.0 persons per household, it is anticipated that the Heritage Ranch CSD's total build-out population will reach 5,800 persons.

The Heritage Ranch CSD only has one water supply source, the Gallery Well, which is fed via three horizontal wells located in the Nacimiento River bed just downstream of the Nacimiento Dam. Typically, the Nacimiento River is fed year-round by the release of water through the upper and/or lower outlet works in the dam at Lake Nacimiento. Monterey County Water Resources Agency monitors and controls the release of the water until the water level of the lake drops below 687 feet, at which time San Luis Obispo County may obtain control over the lake releases. The water is primarily released to sustain habitat in the river, provide water to farmers in the Salinas Valley, and halt sea water intrusion into the Salinas Valley, in addition to providing a water supply source to the Heritage Ranch CSD. If no water is released from the lake, which has rarely occurred in the past 50 years, the Heritage Ranch CSD will not have a water supply. Even though the water level of Lake Nacimiento has never dropped below the dam outlet, it has come close. The last time this occurred was in October of 1989, when the lake level dropped to within two feet above the lower outlet works.

The 1,100 AFY of allocation of Nacimiento Reservoir water designated for use in Heritage Ranch's service area is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area. It is sufficient to provide water for build-out demand, but the configuration of the delivery system leaves the Heritage Ranch CSD vulnerable to a termination in water supply in an extreme drought. Alternative sources are under consideration, including taking water directly from the lake and connecting to the Nacimiento Pipeline. A possible tie-in with Camp Roberts was explored, but is now considered as not being a feasible option due to the reluctance of Camp Roberts to consider any emergency water supply options.

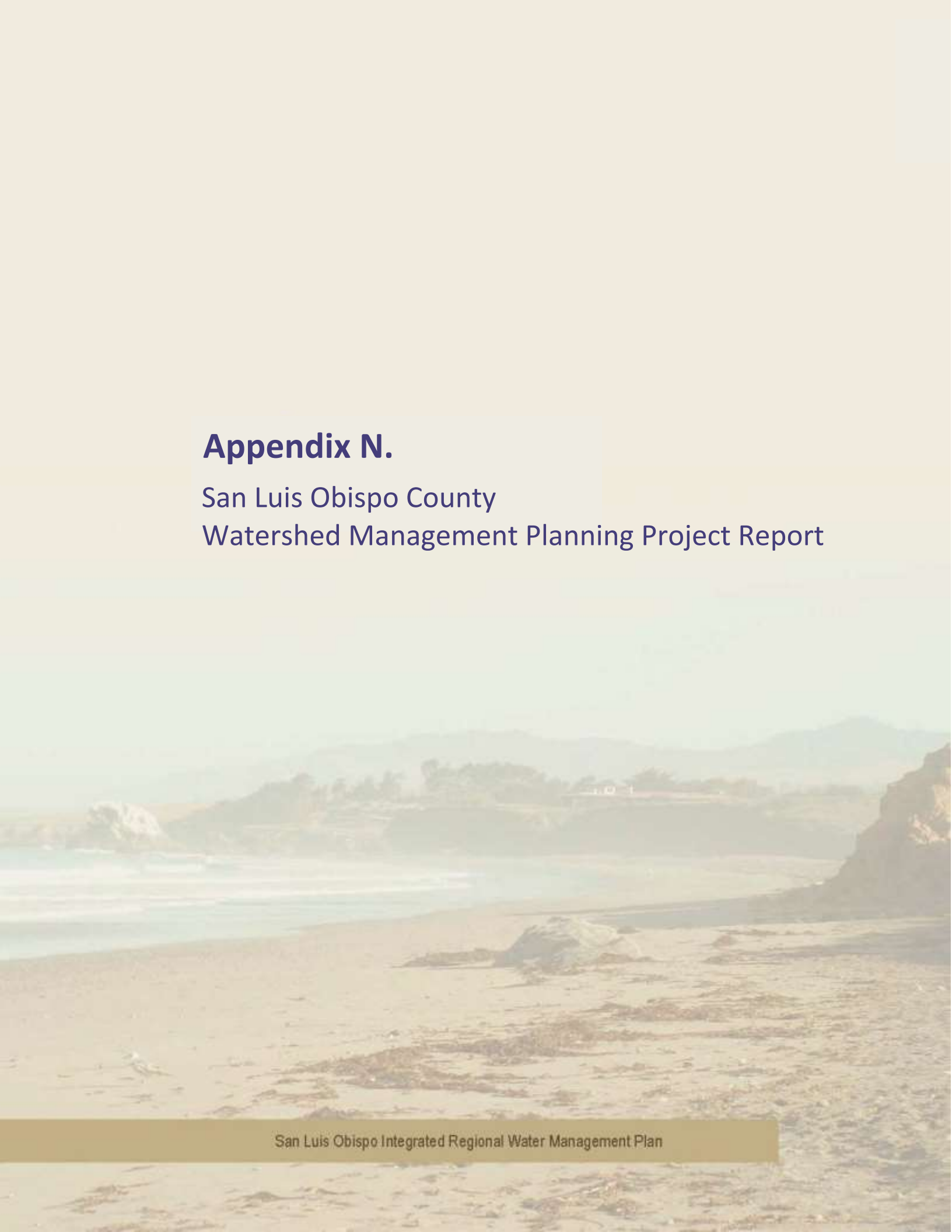
Water demands over the last 3 years have decreased due to an increase in water rates and implementation of water conservation programs such as for toilet retrofits and turf conversion. While the Heritage Ranch CSD's water supply to its customers has historically met all primary water quality standards, it currently exceeds the limits for Disinfection Byproducts (DBP). The treatment plant has been ineffective in removing sufficient natural organic matter to prevent the formation of DBP. The District Board hired a water treatment process engineering consultant and received a report with recommendations on new treatment equipment to better control DBP in September 2010.



San Luis Obispo Integrated Regional Water Management Plan

Appendix N.

San Luis Obispo County
Watershed Management Planning Project Report



RESOURCE
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San Luis Obispo County
Watershed Management Planning Project

Phase I

January 2014

RESOURCE

CONSERVATION DISTRICTS

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Prepared by **Coastal San Luis RCD**

The Coastal San Luis RCD developed all materials related to the South County sub-region and the San Luis Obispo County Instream Flow Assessment.

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Daniel Bohlman, Land Conservancy of San Luis Obispo Ethan Bell, Stillwater Sciences Freddy Otte, City of San Luis Obispo George Kendall, retired geologist and farmer Mark Hutchinson, County of San Luis Obispo Stephanie Wald, Central Coast Salmon Enhancement	Daniel Bohlman Dorothy Jennings Ethan Bell Freddy Otte George Kendall Greg O'Sullivan Gwen Pelfrey Jacqueline Tilligkeit Lisa McCann Marc Lea Mark Hutchinson Michael Conger Stephanie Wald

RESOURCE
CONSERVATION DISTRICTS

Table of Contents

i. **Foreword** i

1. **Introduction** 1-1

2. **Development of SLO County Watersheds Project** 2-1

2.1 Determining Watershed Scale 2-2

2.2 Community Committees / Peer Review 2-3

2.3 Public Participation 2-4

2.4 Interactive GIS Website and Information Repository 2-4

2.5 Data Limitations and Disclaimers 2-6

3. **Watershed Snapshots** 3-1

3.1 Introduction 3-1

3.2 Data Collection Methodology 3-2

3.2.1 Data Limitations and Disclaimers 3-3

3.2.2 North Coast Sub-Region 3-4

3.2.2.1 Morro Bay Watershed 3-6

3.2.2.2 Big Creek-San Carpoforo Area Watershed 3-27

3.2.2.3 Cayucos Creek-Whale Rock Area Watershed 3-38

3.2.2.4 San Simeon-Arroyo de la Cruz Area Watershed 3-54

3.2.2.5 Santa Rosa Creek Area Watershed 3-76

3.2.3 North County Sub-Region 3-92

3.2.3.1 Mid Salinas-Atascadero Area Watershed 3-94

3.2.3.2 Black Sulphur Spring Watershed 3-113

3.2.3.3 Cholame Creek Watershed 3-125

3.2.3.4 Estrella River Watershed 3-139

3.2.3.5 Huer Huero Creek Watershed 3-153

3.2.3.6 Lower San Juan Creek Watershed 3-167

3.2.3.7 Nacimiento River Watershed 3-179

3.2.3.8 Lower Salinas-Paso Robles Creek Area Watershed 3-198

3.2.3.9 Upper Salinas-Santa Margarita Area Watershed.....3-219
3.2.3.10 Soda Lake Watershed.....3-237
3.2.3.11 Upper San Juan Creek Watershed.....3-251
3.2.4 South County Sub-Region.....3-264
3.2.4.1 Alamo Creek Watershed.....3-266
3.2.4.2 Arroyo Grande Creek Watershed.....3-277
3.2.4.3 Cuyama River Watershed.....3-293
3.2.4.4 Huasna River Watershed.....3-306
3.2.4.5 Irish Hills Coastal Watershed.....3-316
3.2.4.6 Nipomo-Suey Creeks Watershed.....3-327
3.2.4.7 Pismo Creek Watershed.....3-338
3.2.4.8 Santa Maria River Watershed.....3-353
3.2.4.9 San Luis Obispo Creek Watershed.....3-369
4. **Data Gap Assessment**.....4-1
4.1 Data Gap Methodology.....4-1
4.2 Data Gap Summary of Findings.....4-1
4.2.1 Watershed Management Plans.....4-2
4.2.2 Overview of Available Data.....4-4
4.3 Links to Primary Resource Issues.....4-5
4.3.2 Prioritization Summary.....4-6
4.4 Climate Change Assessment.....4-9
4.5 Findings.....4-9
4.6 Instream Flow Assessment: Filling a Data Gap.....4-10
4.6.1 Approach.....4-11
4.6.2Results.....4-14
4.6.3 Discussion and Recommendations.....4-16
5. **Conclusion**.....5-1

5.1 Next Steps – Building Resilient Watersheds 5-1
5.1.1 Project Methodology 5-3
5.1.2 Goals 5-4
5.1.3 Focus Watersheds 5-6
5.1.4 Future Funding 5-7
Bibliography 5-8

Figures

Figure 1. Typical Watershed Planning Process 2-2
Figure 2. Map of Watersheds with Management Plans. 4-2
Figure 3. Map of Instream Flow Field Assessment Sites 4-13
Figure 4. Map of Instream FlowAnalysis Points and Stream Flow Gages 4-15
Figure 5. Iterative Plan Process 5-2
Figure 6. Phase 2 Public Participation 5-3
Figure 7.Watershed Toolbox 5-4
Figure 8. Watershed Assessment Framework. 5-6

Appendices

Appendix A. Watershed Products, Goods and Services
Appendix B. Phase 2 Approach Survey Results
Appendix C. Instream Flow Study
Appendix D. Map of San Luis Obispo Watersheds
Appendix E. Standards for Watershed Management Plans
Appendix F. Data Gap Chart: North Coast region
Appendix G. Data Gap Chart: North County region
Appendix H. Data Gap Chart: South County region

RESOURCE

CONSERVATION DISTRICTS

i. Foreword

By LynneDee Althouse, Principal, Althouse and Meade, Inc.

The Watershed Management Planning Project led by our local Resource Conservation Districts (RCDs) contains a timely and important step toward end-user alliances. The RCDs technical and teamwork experts provide a valuable service by compiling disparate databases and reports. This Phase 1 effort informs the public and decision makers about high priority issues, and links that information to available data. This compilation of existing data also exposes significant data gaps where new information and analysis are needed for protection of water quality and quantity.

Water is essential for verdant landscapes, diverse ecosystems, and vibrant communities in San Luis Obispo County. To stay vibrant, we need plenty of high quality water. Ample supplies of high-quality water may be sustained by well-managed watersheds when residents and water users collaborate. One of the best ways to facilitate watershed-scale collaboration is to educate stakeholders about watershed functions and values. In this Phase 1 watershed management plan report, the RCDs set the stage that will allow informed dialogue between watershed land managers and end users. This early document is intended to assist partnerships and alliances between ranchers, farmers, homeowners, businesses, industries, politicians, and regulators that work together for effective watershed management. This effort is dynamic, allowing for updates and revisions of watershed assessments as new information comes to light.

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1. Introduction

Water is a resource that is increasingly stressed in the state of California and the County of San Luis Obispo (SLO or County). Reductions in local water supplies have been linked to significant periods of drought and expanding residential and agricultural development. Residents and visitors alike enjoy the County's natural environment as well as depend on it for water supplies, flood control, recreation, agriculture, and business income among other services (see Appendix A). These benefits and services make many natural resources a focus of land managers, policy makers, resource professionals and the larger community. As such, it is essential that all community members have access to the most current data to better understand the interactions between natural and manmade components of the local environment and the subsequent outcomes of management decisions.

The RCDs of San Luis Obispo County interact with individuals, municipalities, conservation organizations and other community members on a daily basis. In these interactions, we are often tasked with guiding, interpreting, educating, and partnering in relation to natural resource issues. This is no easy matter with the difficult decisions that our communities face, and many of these decisions should not be made by any single individual or entity. With a lack of detailed watershed data accessible to the public – and in one convenient location – we saw an opportunity to raise awareness about watersheds and the essential resources contained within.

The purpose of this Watershed Management Plan Project was to grow the knowledge and value of watersheds and their related services in the community and to strengthen documentation of issues and needs in an effort to encourage faster implementation of appropriate conservation projects. The outcomes of this project are meant to initiate countywide discussions and encourage public engagement.

This project was a team effort between the San Luis Obispo County Resource Conservation Districts through a grant provided by the Department of Water Resources and the County's Integrated Regional Water Management Plan Update. The Project included 1) the collection and organization of existing watershed data into watershed characterization snapshots, 2)

analysis of limitations and identification of gaps in the compiled data (used to inform Phase 2), 3) the creation of an interactive website to make snapshot and mapping data accessible to the public, 4) facilitation of resource manager stakeholder meetings to set the stage for development of the first County Watershed Management Plan in Phase 2, and 5) completing a countywide Instream Flow Assessment.

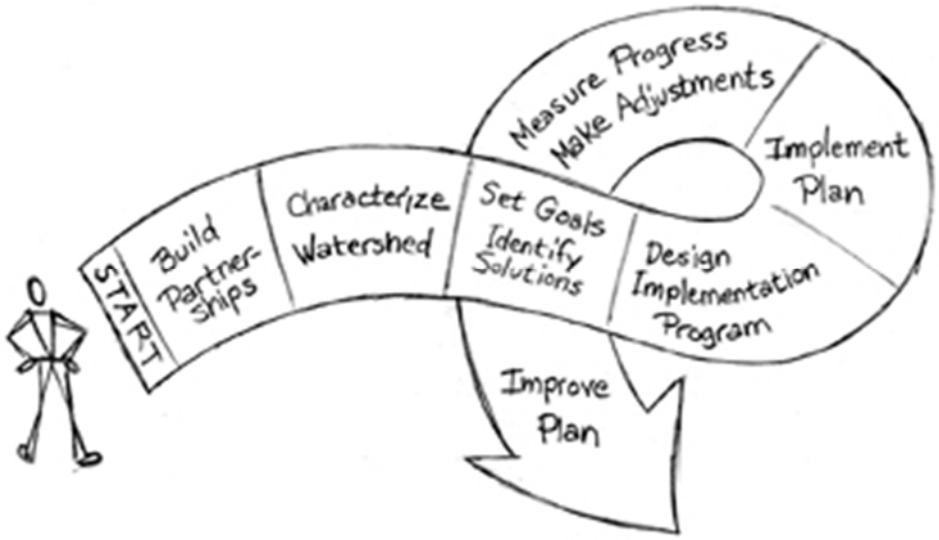
The Upper Salinas Las Tablas RCD developed all materials related to the North Coast and North County water planning areas and the www.SLOWatershedProject.org website and data repository. The Coastal San Luis RCD developed all materials related to the South County water planning area, Morro Bay Watershed Snapshot and the San Luis Obispo County Instream Flow Assessment.

2. Development of SLO County Watersheds Project

Thinking at a watershed scale can change how our community addresses resource issues and finds solutions. The expanded perspective of a watershed approach looks beyond political boundaries to create a more complete picture of our County's resources. These resources are not just related to water or wildlife but can also include cultural resources, economic resources, and others that the community finds relevant. At the State level, a watershed approach is supported through many efforts including the California Water Plan, the State Water Board's Watershed Management Initiative, and the Department of Water Resources' Integrated Regional Water Management Plan. Locally, Watershed Management Plans can help to define watershed specific goals, existing conditions, critical issues and management recommendations as well as engage the community in framing resource issues and defining action items.

This project lays the foundation for future watershed planning and research efforts by providing a knowledge base through Watershed Snapshots and a website: www.slowatershedproject.org, and clearly identifying areas with deficient data. In addition, two (2) committees were formed to start conversations in the community about watershed planning at the County scale. Future phases will be necessary to fully describe what the community wants watershed planning to look like throughout the County. The below illustration outlines the typical watershed planning process. This project focused on building partnerships and characterizing watersheds as a foundation for Phase 2. To ensure success, these steps should be reevaluated to allow for adjustments and local community input.

Figure 1. Typical Watershed Planning Process



2.1 Determining Watershed Scale

A watershed is defined as the area of land where all of the water that is under it or drains off of it goes into the same place. Watersheds come in all shapes and sizes and our survival depends on the resources within them.

The watersheds defined for the purposes of this project were generated at a scale which allows similar sub-watersheds to be grouped while maintaining boundaries between unique drainage areas. Boundaries defined by CalWater (hydrologic units), the Regional Water Quality Control Board (landscape units), the County (water planning areas), and groundwater basins were taken into consideration by the project team and the Technical Advisory Committee. These considerations guided the RCDs to utilize the Calwater/USGS Hydrologic Unit 10 scale at the start and then modify the boundaries to account for local characteristics, variations, underlying geology that could affect management strategies, and areas with which the community strongly identifies. As a result, the County was divided into 25 watershed areas containing a total of 264 sub-watersheds. A map of these watersheds can be found in Chapter 3 of this document followed by the watershed snapshots with detailed information gathered for each of the watersheds.

2.2 Community Committees / Peer Review

In an effort to garner community input as well as solicit technical advice related to the compilation and organization of the watershed snapshots, two committees were established as part of this process - a Technical Advisory Committee and a Watershed Working Group. The Technical Advisory Committee (TAC) was assembled to provide a collaborative forum for guiding collection of existing watershed data and providing specialized peer review. The TAC consisted of local hydrology, geology, and biology specialists as well as municipal staff. Three TAC meetings were held where the types and sources for data were discussed and identified. TAC members are listed on the Title Pages of this document. The Watershed Working Group (WWG) was assembled to assist with project visioning, goal setting and to act as a sounding board for strategies. The Working Group consisted of TAC members, resource professionals, community members, and local advisory group members. One Working Group meeting was held to introduce the project and initial strategies for Phase 2. WWG members are listed in Title Pages of this document. As the project moves into future phases, the Watershed Working Group will guide the overall project and the Technical Advisory Committee will become an ad-hoc sub-committee.

In order to develop a watershed approach specific to San Luis Obispo County, the RCDs and the TAC reviewed plans and studies which adopted a wide range of approaches from process / relationship-based to weighted metrics to data heavy assessments. Plans reviewed included the following:

- Amador County Watershed Plan
- Bay Area Watershed Component of IRWM
- Birch Bay, Washington Watershed Characterization and Watershed Planning Pilot Study
- Nature Serve Vista Software
- New Loudon Comprehensive Watershed Management Plan
- Santa Cruz Watershed Restoration Program

Through discussions with the Technical Advisory Committee, Regional Water Quality Control Board (RWQCB), and municipalities, the preferred approach would have a strong basis in science, address land use and its relationship to natural resources, and support conservation by empowering multiple stakeholders or audiences. Based on these goals, the TAC thought a plan similar to the Birch Bay Pilot Study, which provides a scientific approach focused on watershed functions, should be our long term end goal, but understood that interim steps would be needed to reach this data intensive model. The

approach described in Chapter 5 (Next Steps) is one of these steps to start the plan-implement-evaluate cycle pictured in Figure 1.

2.3 Public Participation

Outreach efforts were made to garner input and participation from the community at large which included presentations, one-on-one meetings, surveys, and information provided on RCD and County IRWMP websites.

Presentations were made at two WRAC meetings focusing on the Instream Flow Assessment and the overall status of the project. Drafts of the Instream Flow Assessment and Watershed Snapshots were posted on the County's IRWMP website and the RCDs websites. At the second WRAC presentation, members were invited to take a survey that assessed preference related to the Phase 2 approach. Surveys were completed by 14 WRAC participants and helped the project team further develop an approach for Phase 2. Survey results are included in Appendix B.

One-on-one meetings were held with municipalities to further improve the project team's understanding of individual needs of municipalities as well as to increase awareness of the project. Surveys on the municipality's relationship to existing and future watershed management plans were completed by the majority of cities and community services districts in the County. The surveys provided perspective on the project audience and their needs (see Appendix B).

The RCDs and County IRWMP websites were used to post basic information about the project as well as draft forms of the watershed snapshots and insteam fow study.

Two 30-day public comment periods are included; one for the Watershed Snapshots and Instream Flow Assessment and a second for the draft final report attached to the Integrated Regional Water Management Plan Update.

2.4 Interactive GIS Website and Information Repository

A new online repository was created to allow easy navigation for users to find watershed data, interactive watershed maps, GIS shapefiles, data resources and all the other features outlined in this county-wide watershed planning project – all in one easy location: www.slowatershedproject.org. This

website offers simple interactivity for all user types and easy download features via a Wordpress platform. All documents developed throughout this project are integrated into these primary navigation tabs:

1.) Home- Interactive Map
2.) Introduction
3.) Watersheds
4.) Resources- Additional Assets for Download
5.) Contributors
6.) FAQ
7.) Contact

The www.slowatershedproject.org project website will also link viewers to various other data sources, including www.SLOdatafinder.org, and SLO Regional GIS Collaborative (SLORGC). SLO DataFinder began as a joint project of Cal Poly's Kennedy Library and the San Luis Obispo County Planning Department with the purpose of facilitating access and information to GIS datasets. The SLO GIS collaborative is being led by the San Luis Obispo Council of Governments (SLOCOG) to coordinate the sharing of GIS data county-wide, across multiple agencies utilizing GIS data and technology. The www.slowatershedproject.org site will be unique in that it will store datasets that are focused on watersheds and natural resources, which are often difficult datasets to locate. In the future, SLORGC hopes to integrate the natural resource data collected by the RCDs into the activities of the SLORGC, making these data resources readily available to multiple agencies across the region.

The interactive mapping capabilities of the website will allow users to interact with the County's watersheds and key information overlays. The RCDs hope to provide watershed level information to resource planners, community members, and regulatory entities facilitating more informed land use planning and land management efforts. By providing links to GIS shapefiles in the resource library, advanced users will also be able to download expanded mapping tools enabling them to create custom watershed maps with a variety of compiled county-wide information. As the RCDs have worked hard to compile these varied data sources specific to San Luis Obispo County, we are able to expand our mapping services throughout the County and can provide watershed and sub-watershed maps to community members and other interested parties upon request.

The expanded accessibility to key mapping and data source information will provide a solid base for watershed level planning and exploration of compatibilities and relationships with land use planning efforts and land management strategies.

2.5 Data Limitations and Disclaimers

The purpose of this report is to compile data related to individual watersheds throughout San Luis Obispo County. No new data was collected and no new analysis was completed with the exception of data collected through the concurrent Instream Flow Study. The snapshots represent a collection and compilation of existing data into one location for use by community members, local consultants, and municipalities. While data was found for a majority of the fields contained in the snapshots, some of the data has limited applicability and efficacy due to the age of the data or the methodologies used. Some data gaps appear to be the result of no previously performed field research of various terrains and watersheds. While every effort was taken to ensure that the information used was as current as possible, many data sources likely exist that were not discovered as part of this exercise. While this compilation is not exhaustive, the watershed snapshots provide a singular location for a variety of information and all sources are cited for reference. The snapshots should continue to be updated with current information as it becomes available to provide for a collaborative and holistic framework for future planning and resource management efforts.

3. Watershed Snapshots

3.1 Introduction

Existing data is not always available for all watersheds in the County nor is it always accessible to the general public. Watershed Snapshots were created as a resource library tool for diverse resource managers to more fully understand the resources in San Luis Obispo County. Watershed specific information could then be used by resource professionals, jurisdictional agencies, and the public to better assess resources and implement projects within a specific region. In addition, the data could be used to navigate through regulatory processes, provide policy guidance, and provide supporting information when pursuing funding opportunities.

Twenty five (25) watershed snapshots were developed to characterize the County's watersheds in a quick and easy-to-read way. A template outlining physical, biological, and cultural characteristics of a watershed was used to maintain consistency in data collection and result in information that could be compared between watersheds. This approach emulated the Watershed Characterizations Atlas completed for the Watershed Component of the Bay Area IRWMP.

Each snapshot compiles and organizes baseline data, providing an overview of the watershed and its main characteristics. Additionally, reference links to expanded documents and studies of interest are provided. Having each snapshot organized in the same manner allows for ease of finding information and comparing and contrasting watersheds throughout the County. Specifically, each snapshot provides an overview of the following categories of information:

- Watershed Description
- Physical Setting
- Hydrology
- Biological Setting
- Land Use
- Demographics
- Water Supply
- Water Use
- Other Unique Characteristics
- Climate Change Considerations

- Watershed Codes
- Major Changes in the Watershed
- Watershed Health by Major Tributary
- Watershed Health by Groundwater Basin
- Primary Issues

Peer reviews were conducted for the Watershed Snapshots and Data Gaps to ensure that information obtained was as accurate and complete as possible. While this was challenging based on the accelerated timeframe of the project, peer reviewers from County staff, Community Service District staff, City staff, Central Coast Regional Water Quality Control Board staff, Caltrans, Althouse and Meade, Central Coast Salmon Enhancement, and the Morro Bay National Estuary Program provided valuable input related to data collection and location of available resources. Efforts were also made to involve the local municipalities and regulatory agencies, not only to gain insights on data available at the community scale but to gain support and input for Phase 2 of the project.

Each snapshot as well as an interactive watershed map and a resource library can be found at www.slowatershedproject.org. The local Resource Conservation Districts strived to make information as accessible as possible to facilitate resource planning and education throughout the County. It is our intent to maintain the website, posting new data and updating snapshots as funding is available.

A map of the watersheds identified for the purposes of this project can be found in Appendix D.

3.2 Data Collection Methodology

Existing data for the Watershed Snapshots was collected in April through September of 2013. Data was pulled from a variety of local and technical sources, including interviews with local experts, scientific professionals, municipalities, water districts, environmental consultants, and community members. The search relied heavily on digital searches for technical documents and published information, including GIS shapefiles and online databases. Other sources included County documents and plans, Watershed Management Plans, Community Service District Documents, Engineering Studies, Biological Assessments, Environmental Impact Reports, Transportation Studies, City Reports and Documents, as well as online databases and resources.

3.2.1 Data Limitations and Disclaimers

The purpose of this report is to compile existing data related to individual watersheds throughout San Luis Obispo County. No new data was collected and no new analysis was completed with the exception of data collected through the concurrent Instream Flow Assessment. The snapshots represent a collection and compilation of existing data. While data was found for a majority of the fields contained in the snapshots, some of the data has limited applicability and efficacy due to its age, the methodologies used, or the scale at which spatial data was collected. Other data is not readily accessible or does not exist at this time. While every effort was taken to ensure that the information used was as current as possible, many data sources likely exist that were not discovered as part of this exercise. While this compilation is not exhaustive, the watershed snapshots provide a singular location for a variety of information and all sources are cited for reference. The snapshots should continue to be updated with current information as it becomes available to provide for a collaborative and holistic framework for future planning and resource management efforts.

3.2.2 North Coast Sub-Region

This sub-region includes the following watersheds:

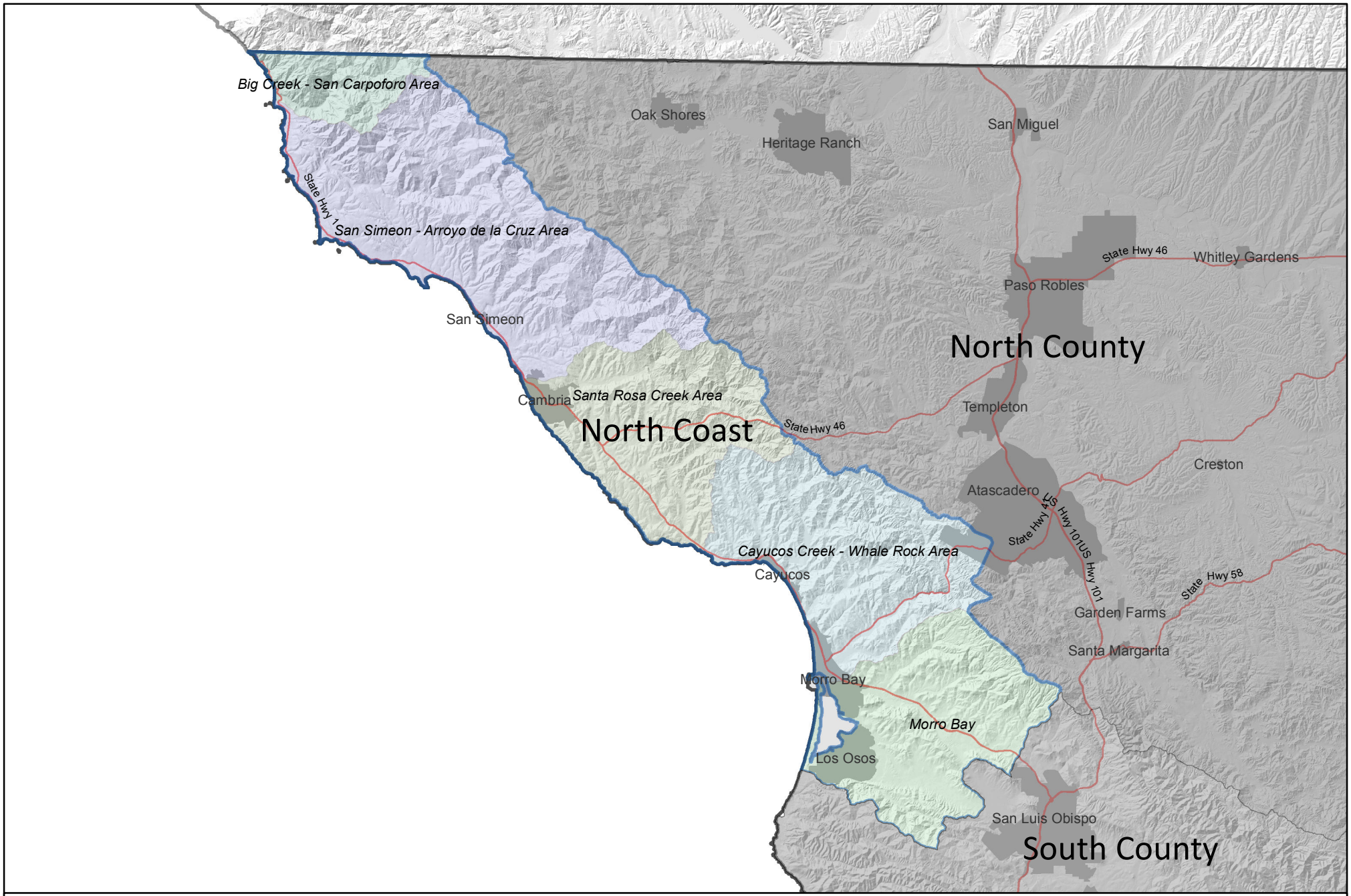
Morro Bay Watershed

Big Creek – San Carpoforo Area Watershed

Cayucos Creek – Whale Rock Area Watershed

San Simeon-Arroyo de la Cruz Area Watershed

Santa Rosa Creek Area Watershed



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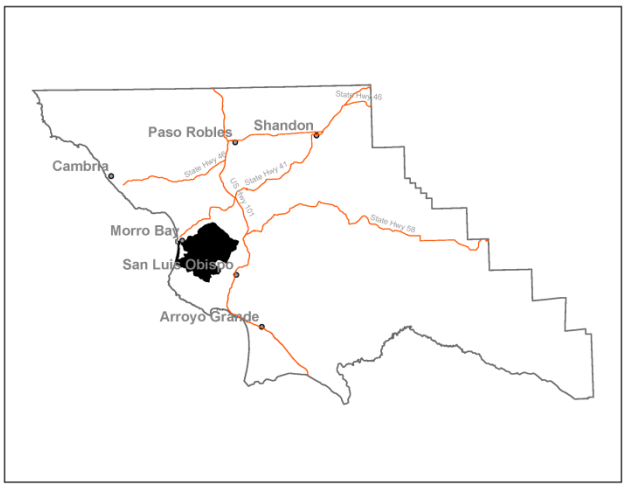
San Luis Obispo County Watersheds
North Coast Water Planning Area

RESOURCE CONSERVATION DISTRICTS

Morro Bay Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay HU 10	Morro Bay WPA 4 Los Osos WPA 5	46,598 acres	Pacific Ocean via Morro Bay estuary	Los Osos Valley, Chorro Valley	County of San Luis Obispo City of Morro Bay Town of Los Osos Camp San Luis Obispo California Men's Colony California Polytechnical State University U.S. Forest Service CA Department of Parks and Recreation



Description:

The Morro Bay Watershed is located in the central area of coastal San Luis Obispo County. It is composed of two major sub-watersheds that drain into Chorro and Los Osos Creeks. The Chorro Creek sub-watershed accounts for about 60 percent of the total land area draining into the estuary.

Much of the watershed remains in open space that is used primarily for agriculture and a range of public uses, including parks, golf courses, nature preserves, a military base, and university-owned rangeland. The developed portions of the watershed include the community of Los Osos/ Baywood Park, parts of the City of Morro Bay, Cuesta College, Camp San Luis Obispo, the California Men's Colony, and various facilities of the County of San Luis Obispo.

Due to the uniqueness of Morro Bay, the watershed has been studied since the late 1980's with watershed plans from that era being completed.

Watershed Plans:

Morro Bay Comprehensive Conservation Management Plan (MBNEP, 2013)

Morro Bay Watershed

Characteristics:

	Physical Setting	
	Rainfall	16 – 35 inches (NRCS Precipitation 1981 – 2010) 20 – 22 inches Mean Annual (SLO County Water.org)
	Air Temperature	Summer Range (August 1981-2010): 56°- 69° F Winter Range (December 1981-2010): 45°- 65° F At Morro Bay Fire Station, Morro Bay, CA. (NOAA National Climatic Data Center, viewed 2013)
	Geology Description	The Warden Creek and Los Osos Creek sub watersheds consist of steep pre-Quaternary non-infiltrative headwaters and a flat highly infiltrative Quaternary valley. The Chorro Creek sub watershed consists of steep pre-Quaternary non-infiltrative headwaters and a flat Franciscan low infiltrative valley (Bell, personal communication, 2013). Morro Bay was formed during the last 10,000 to 15,000 years. A post-glacial rise in sea level of several hundred feet resulted in a submergence of the confluence of Chorro and Los Osos creeks. The geology of the watershed is highly varied, consisting of complex igneous, sedimentary, and metamorphic rock. Over fifty diverse soils, ranging from fine sands to heavy clays, have been mapped in the area. (US EPA, 2003)
	Hydrology	
	Stream Gage	Yes; No USGS gages identified. County gages at Chorro Creek at Canet Road (1978 – present, active); San Luisito Creek at Highway 1 (1985-present, active); and Los Osos Creek and Los Osos Valley Road (1993 - present, active) (SLO County Water.org, viewed 2013).
	Hydrology Models	Yes; Tetra Tech developed the Chorro Creek sediment model. (MBNEP, 2011) Limited data that is not at the watershed scale.
	Peak Flow	Chorro Creek: 5,956 - 7,490 cfs at Canet Road (MBNEP, 2011) No source identified for Los Osos Creek or Warden Creek. Limited data.
	Base Flow	Chorro Creek: 63 – 76 cfs at Canet Road (MBNEP, 2011) No source identified for Los Osos Creek or Warden Creek. Los Osos Creek regularly goes dry during the summer at its crossing with Los Osos Valley Road (MBNEP, personal communication, 2013). Limited data.
	Flood Reports	Yes; Preliminary Engineering Evaluation, Los Osos/Baywood Park Community Drainage Project for San Luis Obispo County Service

		Area No. 9J (Engineering Development Associates, December 1997). The most significant residential flooding problems experienced by the Los Osos and Baywood Park communities are from natural sumps. Primary areas of flooding concern are Los Osos Valley Road in the town of Los Osos, and east of town near its intersection with Cimarron Road (SLO County FCWCD, 2009).
	Biological Setting	
	Vegetation Cover	Primarily non-native grassland with some coast live oak forest, northern coastal salt marsh, willow riparian forest, coastal scrub, morro manzanita, chaparral (chamise, leather oak and pine), beaches and coastal dunes, Serpentine-foothill-pine chaparral-woodland , cypress forest, agricultural land and urban land. (SLO County, vegetation shapefile, 1990) Coastal salt marsh in this watershed supports specially adapted plant species, including pickleweed. Coastal salt marsh and estuarine communities in this watershed provides unique habitat for plants and wildlife. This habitat is important for many species of waterfowl and shorebirds. Willow riparian vegetation is common along several creeks in this watershed (Althouse and Meade, Inc. 2013). Grassland, coastal scrub, oak woodland, riparian, and wetland (CNPS WHR 1997) Limited spatial data. No alliance level vegetation mapping was available for the entire County.
	Invasive Species	Eucalyptus, African veldt grass, cape ivy, American bullfrog, Sacramento pike minnow, European green crab (MBNEP, Invasive Action Plan, 2010); Several aquatic invertebrates (SLOSEA, viewed 2013).
	Special Status Wildlife and Plants	*Key:* FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered.

Morro Bay Watershed

Common Name	**Status**	**ATASCADERO**	**MORRO BAY NORTH**	**MORRO BAY SOUTH**	**SAN LUIS OBISPO**
Animals					
American badger	SSC			x	
big free-tailed bat	SSC			x	
black legless lizard	SSC		x	x	
burrowing owl	SSC (Burrow sites and some wintering sites)				x
California black rail	**ST; Fully Protected**			**x**	
California clapper rail	**FE; SE; Fully Protected**			**x**	
California horned lark	SSC (Nesting)				x
California linderiella	Special Animal				x
California red-legged frog	**FT**			**x**	**x**
coast horned lizard	SSC			x	x
Cooper's hawk	Special Animal (Nesting)			x	
globose dune beetle	Special Animal			x	
mimic tryonia (=California brackishwater snail)	Special Animal			x	
monarch butterfly	Special Animal			x	
Morro Bay blue butterfly	Special Animal		x	x	
Morro Bay kangaroo rat	**FE; SE; Fully Protected**			**x**	

Morro Bay Watershed

Common Name	Status	ATASCADERO	MORRO BAY NORTH	MORRO BAY SOUTH	SAN LUIS OBISPO
Morro shoulderband (=banded dune) snail	**FE**			**x**	
pallid bat	SSC		x	x	x
San Diego desert woodrat	SSC			x	
San Luis Obispo pyrg	Special Animal				x
sandy beach tiger beetle	Special Animal		x	x	
silvery legless lizard	SSC			x	x
steelhead - south/central California coast DPS	**FT**		**x**	**x**	**x**
tidewater goby	**FE**			**x**	
Townsend's big-eared bat	SSC				x
tricolored blackbird	SSC (Nesting)				x
western pond turtle	SSC				x
white-tailed kite	**Fully Protected**				**x**
Plants/ Lichen					
adobe sanicle	**SR**				**x**
Arroyo de la Cruz manzanita	CRPR 1B.2			x	x
beach spectaclepod	**ST**			**x**	
Betty's dudleya	CRPR 1B.2		x	x	x

Morro Bay Watershed

Common Name	**Status**	**ATASCADERO**	**MORRO BAY NORTH**	**MORRO BAY SOUTH**	**SAN LUIS OBISPO**
Blochman's dudleya	CRPR 1B.1		x	x	x
Blochman's leafy daisy	CRPR 1B.2			x	
Brewer's spineflower	CRPR 1B.3	x	x	x	x
California seablite	**FE**			**x**	
Cambria morning-glory	CRPR 4.2			x	x
Carmel Valley bush-mallow	CRPR 1B.2	x			
chaparral ragwort	CRPR 2B.2				x
Chorro Creek bog thistle	**FE; SE**	**x**	**x**	**x**	**x**
coast woolly-heads	CRPR 1B.2			x	
coastal goosefoot	CRPR 1B.2			x	
Congdon's tarplant	CRPR 1B.1				x
Coulter's goldfields	CRPR 1B.1			x	
Cuesta Pass checkerbloom	**SR**	**x**			**x**
Cuesta Ridge thistle	CRPR 1B.2	x	x		x
dacite manzanita	CRPR 1B.1			x	
Diablo Canyon blue grass	CRPR 1B.2			x	
dwarf soaproot	CRPR 1B.2				x
Eastwood's larkspur	CRPR 1B.2			x	x

Common Name	**Status**	**ATASCADERO**	**MORRO BAY NORTH**	**MORRO BAY SOUTH**	**SAN LUIS OBISPO**
Hardham's evening-primrose	CRPR 1B.2			x	
Indian Knob mountain-balm	**FE; SE**			**x**	
Jones' layia	CRPR 1B.2		x	x	x
marsh sandwort	**FE; SE**			**x**	
mesa horkelia	CRPR 1B.1				x
Miles' milk-vetch	CRPR 1B.2	x	x	x	
Morro manzanita	**FT**			**x**	**x**
most beautiful jewel-flower	CRPR 1B.2	x	x	x	x
mouse-gray dudleya	CRPR 1B.3			x	x
Oso manzanita	CRPR 1B.2			x	
Palmer's monardella	CRPR 1B.2	x	x	x	x
Pecho manzanita	CRPR 1B.2			x	
salt marsh bird's-beak	**FE; SE**			**x**	
San Benito fritillary	CRPR 1B.2				x
San Joaquin spearscale	CRPR 1B.2		x	x	
San Luis mariposa-lily	CRPR 1B.2	x		x	x
San Luis Obispo owl's-clover	CRPR 1B.2		x	x	x
San Luis Obispo sedge	CRPR 1B.2	x		x	x

Morro Bay Watershed

		Common Name	**Status**	**ATASCADERO**	**MORRO BAY NORTH**	**MORRO BAY SOUTH**	**SAN LUIS OBISPO**
		Santa Lucia manzanita	CRPR 1B.2			x	
		Santa Margarita manzanita	CRPR 1B.2			x	
			Limited by the type of data collected in the CA Natural Diversity Database.				
	Steelhead Streams		Chorro Creek and Los Osos Creek (NMFS, 2012) Chorro Creek tributaries including Dairy Creek, Pennington Creek, San Bernardo Creek, San Luisito Creek, and 2 unnamed tributaries (NOAA, 2005, p.52574). Walter's Creek (Hardy,M., personal communication, 2013)				
	Stream Habitat Inventory		Yes; Completed 2001 for Chorro Creek, Dairy Creek and Pennington Creek as landowner access allowed by California Conservation Corps. (CEMAR, 2008) There are drafts for Pennington and San Luisito Creeks (Hardy, M., personal communication, 2013) Limited data that does not include other major tributaries.				
	Fish Passage Barriers		San Luisito Creek, Culvert at Adobe road, Temporary Barrier, PAD # 700065.00000; Rancho El Chorro Diversion Dam with Ladder at Pennington Creek, Temporary Barrier, PAD # 700043.00000; Cuesta College Fish Ladder at Pennington Creek, Temporary Barrier, PAD # 700041.00000; Hwy 1 culvert at Pennington Creek, Partial Barrier, PAD # 700040.00000; El CHorro park Culvert at Dairy Creek, Temporary Barrier, PAD # 700039.00000; El Chorro park Dam at Dairy Creek, Temporary Barrier, PAD # 700038.00000; Hwy 1 Culvert at Dairy Creek, Partial Barrier, , PAD # 700037.00000; Camp San Luis Bridge Pilings at Chorro Creek, Partial Barrier, PAD # 700034.00000; Camp San Luis Bedrock falls at Chorro Creek, Temporary Barrier, PAD # 700033.00000; CMC Pipe crossing at Chorro Creek, Temporary Barrier, PAD # 700032.00000; San Anselmo Creek at Hwy 1 Culvert, Unknown status, PAD # 731130.00000; Chorro Stream Grouted Rock Dam and Culvert at Chorro creek, Temporary Barrier, PAD # 705749.00000; Dairy Bedrock Falls at Dairy Creek, Total Barrier, PAD # 705751.00000; Pennington Creek Boulder Cascade, Total Barrier, PAD # 705752.00000; Bridge Apron with grouted rock pool at Chorro Creek, Unknown Status, PAD # 707007.00000; Bedrock falls upstream of Cal Poly Corrals at Pennington Creek, Temporary Barrier, PAD # 707013.00000; Private Drive on San Bernardo Creek Rd at San Bernardo Creek, Temporary Barrier, PAD # 712310.00000;				

Morro Bay Watershed

		Private Drive on San Bernardo Creek Rd at San Bernardo Creek, Total Barrier, PAD # 712311.00000; Private Drive on San Bernardo Creek Rd at San Bernardo Creek, Partial Barrier, PAD # 712312.00000; CMC bridge at Chorro Creek, Unknown Status, PAD # 712313.00000; San Luisito Bridge at San Luisito Creek, unknown Status, PAD #712314.00000; Crossing on private property at San Luisito Creek, Unknown Status, PAD #712316.00000; Diversion Dam at San Luisito Creek, Total Barrier, PAD # 712318.00000; Camp SLO Bridge at Dairy Creek, Unknown Status, PAD #712323.00000; Road Crossing, O'sullivan Airfield at Chorro Creek, Unknown Status, PAD #712331.00000; Road Crossing with gauge station at Chorro Creek, Unkown Status, PAD #712333.00000; South Bay Boulevard Bridge at Chorro Creek, Unknown Status, PAD #712335.00000; CMC bridge at Chorro Creek, Unknown Status, PAD #712337.00000; Chorro Creek Dam at Chorro Creek, Total Barrier PAD # 718832.00000; Fish Passage Project at Los Osos Creek, Unassessed, PAD #707127.00000; Los Osos Bedrock Falls at Los Osos Creek, Total Barrier, PAD # 705750.00000. (CDFW Passage Assessment Database, 2013)
	Designated Critical Habitat	Yes; California red-legged frog, Morro shoulderband snail and Four Plant including Morro Manzanita, Indian Knob mountainbalm, Chorro Creek bog thistle and Pismo clarkia, Western snowy plover, Morro kangaroo rat (USFWS Critical Habitat Portal, viewed 2013) (USFWS, 1998); Steelhead trout (NMFS,2005).
	Habitat Conservation Plans	Yes; Morro shoulderband snail (USFWS Critical Habitat Portal, viewed 2013); South-Central California Steelhead Trout Recovery Plan (NMFS, 2012)
	Other Environmental Resources	San Luis Obispo Coastal Zone, Public Coastal Access, Critical Coastal Area, Morro Rock Ecological Preserve, Morro Bay National Estuary, Sweet Springs Ecological Preserve, Chorro Flats, Morro and Chorro Valley Groundwater Basin, Nine Sisters of San Luis Obispo, Elfin Forest, Los Osos Oaks State Reserve, Morro Bay State Park including a Marine Reserve and a Marine Recreational Management Area, Fishery, eelgrass beds, Pismo and Morro clam preserves
	Land Use	
	Jurisdictions & Local Communities	City of Morro Bay, Town of Los Osos.
	% Urbanized	10.3% (4.37% urban, 5.62% residential and less than 1% commercial/office professional)(SLO County LUC)
	% Agricultural	68.2% (SLO County LUC)
	% Other	21.5% (8.46% open space, 7.30% public facility, 3.08% recreation, 2.48% rural lands and less than 1% wetlands habitat)(SLO County LUC)

Morro Bay Watershed

	Planning Areas	Estero, San Luis Obispo, Salinas River, San Luis Bay Inland
	Potential growth areas	Los Osos (SLO County Estero Planning Area, 2009)
	Facilities Present	Morro Bay Wastewater Treatment Plant with discharge to Ocean; California Men's Colony and Wastewater Treatment Plant; Cuesta College; Camp San Luis; Chorro Dam
	Commercial Uses	Recreation and tourism at Morro Bay; Homeplace Pit Mine for stone, Beecham Pit, El Chorro Regional Park, and fisheries.
	Demographics	
	Population	26,919 in watershed (US Census Block, 2010) 10,234 in Morro Bay (US Census, 2010) 14,276 in Los Osos (US Census, 2010)
	Race and Ethnicity	Watershed: 64.5% Caucasian (17,376), 18.2% Latino (4907), 9.9% black (2,686), 3.4% Asian (906), 3.7% other (U.S. Census Tract, 2010) Morro Bay: Caucasian, representing 79.4%. Latinos represent 14.9% of the total population in Morro Bay. The remaining races each represent less than 3%, including African American, American Indian, Pacific Islander, and Asian(US Census, 2010). Los Osos: Caucasian, representing 77.7%. Asian persons represent 5.2%. Latinos represent 13.8% of the total population in Los Osos. The remaining races each represent less than 3%, including African American, American Indian, and Pacific Islander. (US Census, 2010).
	Income	MHI $53,461 in watershed.(US Census Tract, 2010) MHI $52,582 in Morro Bay (U.S. Census, 2010) MHI $57,500 in Los Osos (U.S. Census, 2010) Census tract is very large crossing multiple watersheds.
	Disadvantaged Communities	No; 5% of individuals are below poverty level in watershed (U.S. Census Tract, 2010) 13.9% of individuals are below poverty level in Morro Bay (U.S. Census, 2010) 7.1% of individuals are below poverty level in Los Osos (U.S. Census, 2010) Census tract is very large crossing multiple watersheds.
	Water Supply	
	Water Management Entities	City of Morro Bay, Los Osos CSD, Golden State Water Company and S&T Mutual Water Company
	Groundwater	Yes; alluvial, Chorro Valley and Los Osos Valley.
	Surface Water	Chorro Reservoir owned by Camp San Luis Obispo and operated by

Morro Bay Watershed

		California Men's Colony; Small reservoirs on agricultural lands.
	Imported Water	Yes; City of Morro Bay has wells in Morro Creek watershed and receives water through the Chorro Valley pipeline of the State Water Project. CA Men's Colony and Cuesta College also receive State Water through the Chorro Valley Turnout. (SLO County State Water Fact Sheet)
	Recycled/ Desalinated Water	Yes; City of Morro Bay owns a desalination plant, and plans to consider recycled water.
	Infiltration Zones	No source identified.
	Water Budget	None to date. One is planned for Chorro Creek subwatershed by Trout Unlimited.
	Water Uses	
	Beneficial Uses	*Chorro Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN). *Los Osos Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN). *Morro Bay Estuary* – Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD), Estuarine Habitat (EST), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Shellfish Harvesting (SHELL)(RWQCB, 2011)

Morro Bay Watershed

	Other Unique Characteristics	
	Historical Resources	Morro Rock State Historic Landmark (State Parks, viewed 2013).
	Archeological Resources	There were Chumash towns called Petpatsu, Wexetmimu, Tipexpa and Chitqawi at the time of European settlement (SB Museum of Natural History, viewed 2013). Limited data.
	Nine Sisters	The Nine Sisters, a line of volcanic plugs, dominate the landscape from Morro Rock through the City of San Luis Obispo. Morro Rock (576 ft.) is the Pacific terminus, with Black Hill (665 ft.), Cabrillo Peak (911 ft.), Hollister Peak (1,404 ft.) in the Morro Bay watershed.
	Climate Change Considerations	
		State climate change maps show sea level affecting portions of the City of Morro Bay and town of Los Osos with inundation along the State Parks beach and back bay (USGS,Cal-Adapt, viewed 2013). The Morro Bay National Estuary Program and California State Polytechnic University contracted with Battelle–Pacific Northwest Division to enhance an existing circulation and transport model of Morro Bay and to provide estimates of how the bay might respond to sea level rise over the next century (PNWD, 2012). The U.S. Environmental Protection Agency's Climate Ready Water Utilities and Climate Ready Estuaries initiatives coordinated their efforts and engaged water resource stakeholders in a climate change adaptation exercise in Morro Bay, California. Both EPA initiatives focus on addressing climate change and water resource issues with stakeholders that share common interests regarding watershed management (EPA, 2013). See IRWMP, 2014 Section H. Climate Change

Watershed Codes

CalWater / DWR Number	HA	Hydrolgic Area Name	HAS	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.220002	2	Point Buchon	2	Chorro	310.22	undefined	Morro Bay

Morro Bay Watershed

3310.220001	2	Point Buchon	2	Chorro	310.22	undefined	San Luisito Creek
3310.220003	2	Point Buchon	2	Chorro	310.22	undefined	Chorro Reservoir
3310.230002	2	Point Buchon	3	Los Osos	310.23	undefined	Mouth of Los Osos Creek
3310.230003	2	Point Buchon	3	Los Osos	310.23	undefined	Warden Lake
3310.230001	2	Point Buchon	3	Los Osos	310.23	undefined	Los Osos Creek
3310.270000	2	Point Buchon	7	Morro Bay	310.27	undefined	undefined
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- In 1542, Portuguese explorer Juan Rodriguez Cabrillo named Morro Bay's magnificent landmark "El Morro" (Spanish for crown shaped hill).
- In 1772, Mission San Luis Obispo was established bringing ranching to the area.
- In 1928, Camp San Luis Obispo was built by the Army National Guard.
- In 1941, Chorro Reservoir was constructed to store runoff water for expanding Camp San Luis Obispo.
- In 1954, California Men's Colony, a state prison, was opened. (MBNEP, 2001)
- In 1963, Cuesta College was opened.
- In 1972, El Chorro Regional Park was created from land donated by Camp San Luis Obispo.
- In 2001, the first Comprehensive Conservation Management Plan was approved for the Morro Bay National Estuary.

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Chorro Creek	Perennial (Sanford, personal communication, 2013)	Yes on 303d list for E. coli, Fecal Coliform, Nutrients, Sediment.	Agriculture, Agricultural Storm Runoff, Channel Erosion, Channelization,	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)

Morro Bay Watershed

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
		Approved USEPA TMDL for Pathogens and Sediment in 2004 and for Nutrients in 2005. (SWRCB, 2010)	Dredging, Erosion/Sedimentation, Habitat Modification, Irrigated Crop Production, Grazing Riparian and/or Upland, Natural, Stream bank Modification/ Destabilization, Major Municipal Point Source, Urban Runoff, Unknown(SWRCB, 2010)	
Dairy Creek	Ephemeral (Sanford, personal communication, 2013)	Yes on 303d list for Fecal Coliform, Low Dissolved Oxygen. Approved USEPA TMDL for Pathogens and Low Dissolved Oxygen in 2004 (SWRCB, 2010)	Confined Animal Feeding Operation, Unknown(SWRCB, 2010)	No source identified.
Pennington Creek (and tributary Chumash Creek)	Ephemeral (Sanford, personal communication, 2013)	Yes on 303d list for Fecal Coliform. TMDL for estimated date of completion 2021. (SWRCB, 2010)	Unknown (SWRCB, 2010)	No source identified.
Walters Creek	Ephemeral (Sanford, personal communication, 2013)	Yes on 303d list for Fecal Coliform. TMDL for estimated date of completion 2021. (SWRCB, 2010)	Unknown (SWRCB, 2010)	No source identified.

Morro Bay Watershed

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
San Luisito Creek	Perennial (Sanford, personal communication, 2013)	Yes on 303d list for Fecal Coliform. TMDL for estimated date of completion 2021. (SWRCB, 2010)	Unknown (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
San Bernardo Creek	Ephemeral (Sanford, personal communication, 2013)	Yes on 303d list for Fecal Coliform. TMDL for estimated date of completion 2021.	Unknown (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Los Osos Creek	Ephemeral (Sanford, personal communication, 2013)	Yes on 303d list for Fecal Coliform, Low Dissolved Oxygen, Nitrate, Nutrients, Sediment. Approved USEPA TMDL for Fecal Coliform and Sediment in 2004 and for Nitrate, Nutrients in 2005. (SWRCB, 2010) TMDL for estimated date of completion 2021. (SWRCB, 2010)	Agriculture, Agricultural Storm Runoff, Channel Erosion, Channelization, Dredging, Erosion/Sedimentation, Habitat Modification, Irrigated Crop Production, Grazing Riparian and/or Upland, Removal of Riparian Vegetation, Natural, Stream bank Modification/ Destabilization, Urban Runoff, Unknown(SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Warden Creek	Ephemeral (Sanford, personal communication, 2013)	Yes on 303d list for Fecal Coliform, Low Dissolved Oxygen, Nitrate. Approved USEPA TMDL for Fecal	Agriculture, Grazing Related, Unknown (SWRCB, 2010)	No source identified.

Morro Bay Watershed

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
		Coliform in 2004 and for Nitrate in 2005. TMDL estimated date of completion 2021. (SWRCB, 2010)		
Morro Bay	NA	Yes on 303d list for Fecal Coliform, Low Dissolved Oxygen, Nitrate, Nutrients, Sediment. Approved USEPA TMDL for Fecal Coliform and Sediment in 2004 and for Nitrate, Nutrients in 2005. TMDL for estimated date of completion 2021. (SWRCB, 2010)		No source identified.

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Chorro Valley Basin	2,210 AFY(San Luis Obispo County, Master Water Report, 2012)	Physical Limitations, water quality issues, environmental demand, and water rights. (San Luis Obispo County, Master Water Report, 2012)	Yes; see description below. (San Luis Obispo County, Master Water Report, 2012)	No. (RWQCB, Table 3-8, 2011)

Morro Bay Watershed

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Los Osos Valley Basin*	3,200 AFY(San Luis Obispo County, Master Water Report, 2012)	Water quality due to sea water intrusion and nitrate contamination(San Luis Obispo County, Master Water Report, 2012)	Yes; see description below. (San Luis Obispo County, Master Water Report, 2012)	Undetermined. (RWQCB, Table 3-8, 2011)
Morro Valley Basin	1,500 AFY(San Luis Obispo County, Master Water Report, 2012)	Physical Limitations, water quality issues, and water rights. (San Luis Obispo County, Master Water Report, 2012)	No. (San Luis Obispo County, Master Water Report, 2012)	Undetermined. (RWQCB, Table 3-8, 2011)

* A court-mandated group comprised of LOCSD, Golden State Water Company, the County of SLO, and S&T Mutual Water Company released a draft Comprehensive Basin Plan for Management of Groundwater Resources in the Los Osos Basin (August, 2013).

Groundwater Quality Description: Chorro Valley Basin- Nitrate concentrations are a concern for water quality in the lower portion of Chorro Valley basin. Sea water intrusion has been documented historically and is a potential future concern in the Chorro Flats area, should pumping patterns change significantly. Recent basin TDS concentrations (measured in 2008) were typically between 500 and 700 mg/l (DWR, 1975; Cleath-Harris Geologists, 2009).

Los Osos Valley Basin - TDS concentrations are generally between 200 mg/L and 400 mg/L. Nitrates are the primary constituent of concern in the upper aquifer, with concentrations in excess of the State drinking water standard of 45 mg/L as nitrate throughout the urban area (Cleath & Associates, 2005, 2006a, 2006b).

Lower aquifer displays characteristics of sea water intrusion on the west side of the basin. TDS concentrations also vary significantly by location, and have been reported at up to 950 mg/L in west side supply wells, although average values in the urban area are closer to 500 mg/L. Sea water intrusion is the main concern for lower aquifer water quality (Cleath & Associates, 2005; GSWC, 2009). (SLO County, 2012)

Morro Bay Watershed

Primary Issues

Issue	Potential Causes	Referenced from
Accelerated sedimentation	Natural, increased impervious area, lack of vegetation due to land management and fire	MBNEP, 2012
Bacterial contamination	Urban runoff, grazing area runoff, waste disposal from boats, domestic and wild animal waste, septic systems	MBNEP, 2012
Elevated nutrient levels	Wastewater treatment effluent from California Men's Colony, cropland runoff, rangeland runoff, and natural	MBNEP, 2012
Toxic pollutants	Historic mining operations, household and agricultural pesticides, detergents, soaps, oils and lubricants from street drainage, and household or commercial cleaning products, non-fouling paints and other chemicals used for boat maintenance, fuel spills, illegal dumping and emerging contaminants	MBNEP, 2012
Scarce freshwater resources	Natural conditions plus use and impacted groundwater water quality	MBNEP, 2012
Preserving biodiversity	species and habitat loss	MBNEP, 2012
Environmentally balanced use	Important human uses necessarily have some impact on natural resources	MBNEP, 2012

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

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Big Creek – San Carpoforo Creek Area Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay 10	Cambria WPA 2	264,552 acres total 13,046 acres (within San Luis Obispo County)	Pacific Ocean at Monterey Bay National Marine Estuary	San Carpoforo Valley	County of San Luis Obispo

Description:

The Big Creek – San Carpoforo Creek Area Watershed straddles San Luis Obispo County and Monterey County with 13,046 acres out of 264,552 total acres within SLO County. This snapshot represents data related to those sub-watersheds located within the CalWater HUC 10 watershed grouping in San Luis Obispo County. The watershed lies along the Pacific Ocean with the southernmost outfall at Ragged Point, north of San Simeon. The most notable waterway within the San Luis Obispo portion of the watershed is San Carpoforo Creek, which has its headwaters in the Los Padres National Forest at the Santa Lucia Range in southern Monterey and Northern San Luis Obispo County. Pacific Ocean outfall of San Carpoforo Creek is designated as State Marine Conservation Area and State Marine Reserve within the Monterey Bay National Marine Sanctuary. Mt. Mars Creek also independently drains into the Pacific Ocean just north of the San Carpoforo Creek drainage. Peak elevation for the watershed is approximately 2610 feet high with the low being roughly 16 feet above sea level in Monterey County. A portion of the San Carpoforo Creek drainage is located within the boundaries of the Hearst Ranch property and is currently under the provisions of a conservation easement. The dominant land use is Los Padres National Forest and rangeland agriculture, with a majority of rangeland concentrated in the area of Hearst ranch. A rugged shoreline and mountainous eastern ridge characterize the northern portion of the watershed. The creek was the route of the historic Portola Expedition and was identified as an area of high ecological significance by the Forest Service.

Watershed Plans:

No existing plans to date

Big Creek – San Carpoforo Creek Area Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 19 in. (coast) - 36 in. (mountains) (NRCS Shapefile, 2010)
	Air Temperature	Summer Range (August 2001-2012): 50°-77°F Winter Range (December 2001-2012): 44°-62°F (Big Sur, ncdc.noaa.gov)
	Geology Description	Steep Franciscan non-infiltrative headwaters (Bell, pers. comm., 2013). Mountains of the rugged Big Creek Watershed coastline notably rise to 5,000 foot summits within two miles of ocean in Monterey County, the most abrupt elevation change of the entire Pacific shore. Several hundred million years ago, river-borne sediments from a mountain range in what is now Mexico were deposited along the west coast. Layers of sandstone, siltstone and limestone were compressed and folded by the underriding of tectonic plates at the continent's edge. The sediments metamorphosed with pressure into schist, gneiss, granofels and marbles of the Franciscan Formation, now the oldest rocks in the Santa Lucia Range. By 65 million years ago this plate, called the Salinan Block, began to drift northward by plate tectonic movement. The block's progress was halted by Pacific Ocean crust and started a process of faulting and uplifting which continues today. Seismic activity is frequent along lateral faults that result in canyons running parallel to the coast instead of directly into it. Highest peaks are granitic rock, which are more resistant to erosion. Taller peaks may also be marble (metamorphosed limestone). Original sediments of sandstone and siltstone have been tilted up into cliffs in some areas (Chipping, 1987). The San Carpoforo Valley Groundwater Basin underlies San Carpoforo Valley in northwestern San Luis Obispo County. The basin is bounded on the west by the Pacific Ocean and on all other sides, by impermeable rocks of the Jurassic to Cretaceous age Franciscan Group (Ca Dept of Water Resources, 2003).
	Hydrology	
	Stream Gage	Yes; USGS 11142550, last recorded in 1978. (San Carpoforo Creek near Hwy 1)
	Hydrology Models	No source identified
	Peak Flow	14,200 cfs, 1978 (USGS, viewed August 2013)
	Base Flow	148.6 cfs, 1978 (USGS, viewed August 2013)

Big Creek – San Carpoforo Creek Area Watershed

	Flood Reports	No source identified
	Flood Control Structures	No data available
	Areas of Heightened Flood Risk	No data available
	Biological Setting	
	Vegetation Cover	Primarily coast live oak woodland, and mixed evergreen forest consisting of continuous coast live oak and California bay with some coastal redwood. Some coastal scrub, buckbrush chaparral, serpentine chaparral, and chamise chaparral, non-native annual grassland, intermittent ponderosa pine, and valley foothill riparian consisting of continuous coast live oak are present. (SLO County vegetation shapefile, 1990) Coastal redwood has limited distribution in San Luis Obispo County and is primarily found along the North Coast. *Data limited by age of shapefile available*
	Invasive Species	No data available
	Special Status Wildlife and Plants	*Key*: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Species	Status	BURNETT PEAK	BURRO MOUNTAIN	PIEDRAS BLANCAS	SAN SIMEON
Animals					
black swift	SSC		x		
foothill yellow-legged frog	SSC		x		
monarch butterfly	SA	x	x	x	x
prairie falcon	SA Nesting	x	x	x	x
Smith's blue butterfly	FE		x		
steelhead - south/central California coast DPS	FT		x		
western pond turtle	SSC		x		
Plants					
Brewer's spineflower	CRPR 1B.3		x		

Big Creek – San Carpoforo Creek Area Watershed

Species	Status	BURNETT PEAK	BURRO MOUNTAIN	PIEDRAS BLANCAS	SAN SIMEON
bristlecone fir	CRPR 1B.3	x	x		
Cone Peak bedstraw	CRPR 1B.3		x		
Cook's triteleia	CRPR 1B.3		x		
Hardham's bedstraw	CRPR 1B.3	x	x		
late-flowered mariposa-lily	CRPR 1B.2	x	x		
most beautiful jewel-flower	CRPR 1B.2		x		
Palmer's monardella	CRPR 1B.2		x		
San Luis Obispo sedge	CRPR 1B.2	x	x	x	x
Santa Lucia bedstraw	CRPR 1B.3		x		

Steelhead Streams	Yes; San Carpoforo Creek (Becker et. al, 2010) The California Department of Fish and Game considers the San Carpoforo Creek to be one of two of the most important spawning streams for threatened steelhead in San Luis Obispo County (Ventana Wilderness Alliance, 2007).
Stream Habitat Inventory	Yes; Department of Fish and Game, 1995 *Data limited by age of last inventory*
Fish Passage Barriers	None identified
Designated Critical Habitat	Yes; Steelhead Trout (USFWS Critical Habitat Mapper, viewed 2013)
Habitat Conservation Plans	None identified
Other Environmental Resources	San Luis Obispo Coastal Zone, Monterey Bay National Marine Sanctuary, Hearst Ranch Conservation Project (SLO County Flood Control and Water Conservation District, 2007)
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo
% Urbanized	0% (SLO County LUC)
% Agricultural	82% - 17.3 sq mi: rangeland (SLO County LUC)
% Other	1% recreation; 17% rural residential (SLO County LUC)
Planning Areas	North Coast Planning Area (SLO County)
Potential growth areas	None identified

Big Creek – San Carpoforo Creek Area Watershed

	Facilities Present	Hearst Ranch
	Commercial Uses	Ragged Point Inn and Resort, tourism, agriculture (livestock grazing)
	Demographics	
	Population	13 (US Census Block, 2010)
	Race and Ethnicity	Caucasian, representing 100%. (US Census Block, 2010)
	Income	MHI $51,557 (includes rural lands of coastal communities from northern SLO boundary to Morro Bay) (US Census Tracts, 2010)
	Disadvantaged Communities	No; 0% individuals below poverty (US Census Tracts, 2010)
	Water Supply	
	Water Management Entities	None identified for the portion of the watershed located within San Luis Obispo County – existing uses served by Individual wells
	Groundwater	Yes; Alluvial, San Carpoforo Valley Basin San Carpoforo Valley
	Surface Water	No public reservoirs in the watershed. Identified as fully appropriated stream system for entire year according to the SWRCB's Water Code 1205-1207.
	Imported Water	None
	Recycled/Desalinated Water	None
	Key groundwater percolation area(s)	No data on key areas identified Recharge to the basin is largely by percolation of stream flow and to a lesser extent from infiltration of precipitation and excess irrigation flow *(*Ca Dept. of Water Resources, 2003).
	Water budget	None to date
	Water Uses	
	Beneficial Uses	*San Carpoforo Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM). *Chris Flood Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Groundwater Recharge (GRW), Water Contact

Big Creek – San Carpoforo Creek Area Watershed

		Recreation(REC-1), Noncontact Water Recreation(REC-2), Wildlife Habitat(WILD), Cold Freshwater Habitat(COLD), Warm Freshwater Habitat (WARM), and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	Monterey Bay National Sanctuary	Flows south out of the Santa Lucia Range in the northern Los Padres National Forest, onto lands owned by the Hearst Corporation and then to the Pacific Ocean. Pacific Ocean outfall designated as State Marine Conservation Area and State Marine Reserve within the Monterey Bay National Marine Sanctuary. Supports one of the few remaining populations of sensitive foothill yellow legged frogs on the Central Coast, as well as endangered California red-legged frogs.
	San Luis Obispo Coastal Zone	Spanning 118 miles of coastline with numerous wide sandy beaches, sheltered bays, and vista points offering scenic views of the Pacific Ocean. The coastal zone of San Luis Obispo County is known throughout the state for its beauty and diversity. The north coast is characterized by the rugged headlands to Big Sur. The rocky shoreline along the Hearst Ranch is highly valued for offshore views of marine mammals as well as scenic cliffs and rocky points.
	Hearst Ranch	Hearst Ranch encompasses an impressive variety of habitats and topography - elevations on the Ranch rise from sea level along the coastline to 3,600 feet on some of the peaks along the ridgeline of the Santa Lucia Mountains. Grassland-covered coastal terraces extend to natural sea bluffs, rocky headlands and sandy beaches. Over 1,400 acres of riparian woodland is present on the property. Riparian woodland species include Sycamore and Coast live oak.
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data general to North County, not watershed specific*

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic sub-area name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.110101	1	Cambria	1	San Carpoforo	310.11	Jones Mtn.	Chris Flood Creek
3310.110102	1	Cambria	1	San Carpoforo	310.11	Jones Mtn.	Upper San Carpoforo Creek

Big Creek – San Carpoforo Creek Area Watershed

3310.110201	1	Cambria	1	San Carpoforo	310.11	Breaker Point	Lower San Carpoforo Creek
3310.110203	1	Cambria	1	San Carpoforo	310.11	Breaker Point	Mount Mars
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- Native American use of the Big Creek watershed goes back at least 6,500 years. Shell middens along the creek can be as much as 14 feet deep, indicating a long history of use. In addition, the remains of historic homestead sites still exist, like those of Gamboa and Boronda (Ventana Wilderness Alliance, 2007)
- San Carpoforo Creek was the route of the historic Portola Expedition of 1769, which led to the establishment of the California Missions and ultimately the European colonization of northern California. According to journal entries by Portola members, contact between Portola and native people took place on the banks of the San Carpoforo and therefore, the area is considered to be one of the last primal remnants of the original encounter between indigenous and European consciousness anywhere on the Pacific coast. In addition, a venerable grove of olive trees near the confluence of San Carpoforo and Dutra Creeks marks the location where an outpost of the Mission San Antonio de Padua once stood (Ventana Wilderness Alliance, 2007)
- In 1937, Highway 1 between Carmel and San Luis Obispo was completed, providing a coastal ink between the Central Coast and Northern California. (Monterey County Historical Society, 2013)

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Chris Flood Creek	Undetermined	Not assessed	Undetermined	Not assessed
Lower San Carpoforo Creek *	Undetermined	Not assessed	Undetermined	Spring: 2.0 cfs Summer: 0.62 cfs
Mount Mars Creek*	Undetermined	Not assessed	Undetermined	Not assessed
Upper San Carpoforo Creek	Undetermined	Not assessed	Undetermined	Not assessed

** Indicates independent drainage to the Pacific Ocean*

Big Creek – San Carpoforo Creek Area Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
San Carpoforo Valley	No data available	physical limitations and potential water quality issues (Carollo, 2012)	No	None (CCRWQCB, 2011)

* No new data available since 1975

Groundwater Quality Description: Groundwater is found in Holocene and late Pleistocene age alluvium. Issues affecting the basin include seawater intrusion and limited basin yield. Recharge to the basin is largely by percolation of stream flow and to a lesser extent from infiltration of precipitation and excess irrigation flow (DWR 1958). The estimated total groundwater storage capacity is 1,800 AF (DWR 1975).

No information is available describing water quality in the basin (Carollo, 2012).

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Seawater intrusion into GW basin	Reduced groundwater quantity	Carollo, 2012
Limited GW basin yield		Carollo, 2012
Outdated Groundwater Basin data		Carollo, 2012

The northern part of the San Luis Obispo Coastline and the southern part of the Monterey coastline remains one of the few minimally disturbed watersheds within our study area. However, impacts due to climate change continue to affect all areas of the County and, in combination with periods of drought, coastal creeks continue to see diminished flows which impacts the health of the ecological community.

To date, no watershed plans were identified to provide further detailed analysis of the health and/or issues facing this watershed. Further analysis is needed to know whether threats exist and what steps should be taken to maintain and enhance the health of the watershed.

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Big Creek – San Carpoforo Creek Area Watershed

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Cayucos Creek – Whale Rock Area Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay 10	Cayucos WPA 3	54,974 acres	Pacific Ocean / Estero Bay	Cayucos Valley, Old Valley, Toro Valley & Morro Valley	County of San Luis Obispo, Cayucos, Morro Bay (ptn) Los Padres National Forest

Description:

The Cayucos Creek – Whale Rock Area Watershed lies within the southern portion of the California Coast Range. The watershed is bounded to the west by Pacific Ocean and the east by the Santa Lucia Mountain Range. Consistent with the CalWater HUC 10 grouping scale, the watershed area contains four major drainages that independently reach the Pacific Ocean: Cayucos Creek, Old Creek, Toro Creek and Morro Creek, the latter of which borders and shares some attributes with the Morro Bay watershed. The headwaters of the watershed are in Santa Lucia Range, reaching a maximum elevation of approximately 2,345 feet with the lowest elevation at around at sea level, draining in to the Pacific Ocean. Whale Rock reservoir is located in the watershed approximately ½ mile east of the community of Cayucos. The dominant land use in the watershed is Agriculture with the sea side town of Cayucos providing an urban core area with tourist oriented opportunities.

Existing Watershed Plans:

None to date

Cayucos Creek – Whale Rock Area Watershed

Characteristics:

	Physical Setting	
	Rainfall	Average Annual: 16 in (coast) - 32 in. (mountains) (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 54°-67°F Winter Range (December 1990-2012): 43°-62°F (Morro Bay, *outside of watershed*, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Cayucos Creek and Cottontail Creek are steep Franciscan non-infiltrative headwaters with flat pre-Quaternary moderate infiltrative valleys. Torro Creek sub-watershed is steep Franciscan non-infiltrative. Old Creek is moderately steep to steep pre-Quaternary non-infiltrative material. The Morro Creek sub watershed consists of steep pre-Quaternary non-infiltrative headwaters and a flat Franciscan low infiltrative valley. Whale Rock Reservoir is composed of flat Franciscan low infiltrative valley (Bell, pers. comm., 2013). Groundwater is found in Pleistocene and Holocene alluvium and terrace deposits. The specific yield is estimated at 15 percent. Alluvium consists of unconsolidated sand, clay, silt, and gravel. The deposits are often about 100 feet thick near the center of the valley and more than 120 feet thick at the coast. Stream-terrace deposits are primarily unconsolidated deposits of marine origin. They are generally less than 10 feet thick. (Chipping, 1987)
	Hydrology	
	Stream Gage	Yes; USGS 11142100 (Toro Creek at Toro Creek Road, viewed August 2013) Yes, Morro Creek installed in 1970. (SLO County Water)
	Hydrology Models	None to date.
	Peak Flow	4,600 cfs, Jan. 1973 (USGS, 1970-78, viewed August 2013)
	Base Flow	5.74 cfs (USGS, 1970-78, viewed August 2013)
	Flood Reports	Yes, SLO County Flood Control and Water Conservation District, 2009
	Flood Control Structures	Bridges: 3 over Toro Creek on Toro Creek Road; 2 over Old Creek on Santa Rita Road and Cabrillo Street; 1 over Cottontail Creek on Cottontail Creek Road; 1 over Willow Creek on Ocean Boulevard; 4 over Cayucos Creek on Ocean Avenue, Cayucos Creek Road and Picachio Drive (2); 1 over Little Cayucos Creek on Ash Street (PWD Bridges GIS Layer)

Cayucos Creek – Whale Rock Area Watershed

		Pipelines; levees; pump station; stormdrain; inlets; outfall structures; diversion pipe (SLO County Flood Control and Water Conservation District, 2009).
	Areas of Flood Risk	Toro, Old, Cayucos, Little Cayucos Creeks are flood-prone natural drainage courses that should be maintained in their natural state to protect native vegetation and wildlife habitats. A lack of suitable conveyance facilities for stormwater runoff has led to frequent flooding problems in the coastal community of Cayucos, including serious flooding adjacent to Cayucos Creek. (SLO County Flood Control and Water Conservation District, 2009) Serious flooding occurs in the floodplain of Cayucos Creek west of HWY 1, bounded by the mobile home park to the North and Cayucos Drive to the South: Flooding occurs during storm events due to flows overtopping Cayucos Creek, west of highway 1, creating inability for local drainage to enter creek and dissipate. (SLO County Flood Control and Water Conservation District, 2009)
	Biological Setting	
	Vegetation Cover	Primarily non-native annual grassland with coast live oak woodland, coastal scrub consisting mainly of chamise and California sagebrush, some mixed evergreen forest, and coastal dune. (SLO County vegetation shapefile, 1990) Many drainages are partially lined with willow riparian scrub near the coast. *Data limited by age of shapefile*
	Invasive Species	No data available
	Special Status Wildlife and Plants	*Key*: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Cayucos Creek – Whale Rock Area Watershed

Common Name	Status	BURNETT PEAK	BURRO MOUNTAIN	LIME MTN	PEBBLESTONE SHUT-IN	PIEDRAS BLANCAS	SAN SIMEON
Animals							
California red-legged frog	FT			x	x	x	x
ferruginous hawk	SA (Wintering)						x
foothill yellow-legged frog	SSC						x
fringed myotis	SA						x
long-legged myotis	SA						x
monarch butterfly	SA	x	x			x	x
pallid bat	SSC						x
prairie falcon	SA (Nesting)	x			x		x
steelhead - south/central California coast DPS	FT				x	x	x
tidewater goby	FE					x	x
Townsend's big-eared bat	SSC	x					x
tufted puffin	SSC					x	
two-striped garter snake	SSC				x		x
western pond turtle	SSC				x	x	x
Plants							
adobe sanicle	SR; CRPR 1B.1					x	
Arroyo de la Cruz manzanita	CRPR 1B.2				x	x	x
Arroyo de la Cruz mariposa-lily	CRPR 1B.2					x	
bristlecone fir	CRPR 1B.3	x					x
Cambria morning-glory	CRPR 4.2					x	
Carmel Valley bush-mallow	CRPR 1B.2				x		

Cayucos Creek – Whale Rock Area Watershed

Common Name	Status	BURNETT PEAK	BURRO MOUNTAIN	LIME MTN	PEBBLESTONE SHUT-IN	PIEDRAS BLANCAS	SAN SIMEON
Chorro Creek bog thistle	FE; SE; CRPR 1B.2				x		
compact cobwebby thistle	CRPR 1B.2					x	x
Cook's triteleia	CRPR 1B.3	x			x		
Dudley's lousewort	SR; CRPR 1B.2					x	x
dwarf goldenstar	SR; CRPR 1B.2					x	
Hardham's bedstraw	CRPR 1B.3	x			x		x
Hearsts' ceanothus	SR; CRPR 1B.2					x	x
Hearsts' manzanita	SE; CRPR 1B.2					x	x
Hickman's onion	CRPR 1B.2					x	x
late-flowered mariposa-lily	CRPR 1B.2				x		
maritime ceanothus	SR; CRPR 1B.2					x	x
marsh microseris	CRPR 1B.2					x	
Monterey pine	CRPR 1B.1						x
Monterey spineflower	FT; CRPR 1B.2						x
most beautiful jewel-flower	CRPR 1B.2			x	x	x	x
Palmer's monardella	CRPR 1B.2	x				x	
perennial goldfields	CRPR 1B.2					x	
pink Johnny-nip	CRPR 1B.1					x	
San Luis mariposa-lily	CRPR 1B.2				x		
San Luis Obispo owl's-clover	CRPR 1B.2					x	x
San Luis Obispo sedge	CRPR 1B.2	x			x	x	x

Cayucos Creek – Whale Rock Area Watershed

Common Name	Status	BURNETT PEAK	BURRO MOUNTAIN	LIME MTN	PEBBLESTONE SHUT-IN	PIEDRAS BLANCAS	SAN SIMEON
San Simeon baccharis	CRPR 1B.2				x	x	
Santa Lucia bush-mallow	CRPR 1B.2				x		
Toro manzanita	CRPR 1B.2	x					
woodland woollythreads	CRPR 1B.2				x	x	

Steelhead Streams	Yes; Cayucos Creek, Old Creek, Cottontail Creek, Toro Creek, Morro Creek (Carollo, 2012).
Stream Habitat Inventory	Yes; USFW, 1994 *Data limited by age of study*
Fish Passage Barriers	Morro Creek: Crossing at Morro Creek Ranch, Cerro Alto Campground on Highway 41, Highway 41 culvert, Dam, Natural bedrock falls (National Marine Fisheries Service, 2007). Old Creek: Whale Rock Dam/Reservoir very close to mouth (National Marine Fisheries Service, 2007). Toro Creek: Toro Creek Rd.-2 barriers coming from Highway 41 side, Flashboard dams-1 on Borg property on Highway 41 side, 1 location unknown (National Marine Fisheries Service, 2007)
Designated Critical Habitat	Yes; Steelhead Trout; California red-legged frog (USFWS Critical Habitat Portal, 2013)
Habitat Conservation Plans	Yes; Morro Bay Estuary Comprehensive Conservation and Management Plan, Chorro and Morro Groundwater Basin Management Plan
Other Environmental Resources	San Luis Obispo Coastal Zone, Cayucos Beach, Cayucos State Beach, Critical Coastal Area, Whale Rock Reservoir (SLO County Flood Control and Water Conservation District, 2007)
Land Use	
Jurisdictions and Local Communities	County of San Luis Obispo, Town of Cayucos, Portion of Morro Bay
% Urbanized	6% (3% in City of Morro Bay, 0.8% in City of Atascadero city limits, 0.04% Cayucos Commercial, 0.03% Public Facilities, 2.5% Residential) (SLO County LUC)

Cayucos Creek – Whale Rock Area Watershed

	% Agricultural	68% Agriculture (row crops, vineyards, orchards and rangeland) (SLO County LUC)
	% Other	26% (11% open space - Coastal and surrounding Whale Rock Reservoir, 1.6% Recreation - beaches, Morro Strand State Beach, whale rock reservoir, Cerro Alto campground, 13% rural lands) (SLO County LUC)
	Planning Areas	Adelaida, Estero, Salinas River Planning Areas
	Potential growth areas	Cayucos
	Facilities Present	Whale Rock Reservoir, Cayucos Area Water Organization; Cayucos Water Treatment Plant (Whale Rock Reservoir water treatment)
	Commercial Uses	Industrial facilities: (Whale Rock Pit -Negranti Construction, Guerra Quarry - Weyrick Companies, Standard Oil Company Tank Farm, Chevron); agriculture; tourism; retail outlets; hotels; restaurants; fishing
	Demographics	
	Population	9,795 in watershed 2,592 in the community of Cayucos (U.S. Census, 2010).
	Race and Ethnicity	Caucasian, representing 81.3%. Latinos represent 13% in City. Mixed Race representing 2%. The remaining races each represent less than 3%, including African American (0.3%), American Indian (0.6%), Pacific Islander (0.1%), and Asian (2.4%) (U.S. Census Blocks, 2010). Cayucos: Caucasian, representing 91.3%. Asians representing 2.1%. Mixed Race representing 2.4%. The remaining races each represent less than including African American (0.2%), American Indian and Alaska Native (0.5%), Pacific Islander (0.3%). (US Census, 2010)
	Income	MHI $49,312 in watershed (U.S. Census Tracts, 2010) MHI $59,130 in Cayucos (US Census, 2010)
	Disadvantaged Communities	No; 18.3% of individuals are below poverty level in watershed (U.S. Census Tract, 2010). 11% of individuals are below poverty level in Cayucos (US Census, 2010)
	Water Supply	
	Water Management Entities	Yes; Cayucos Area Water Organization, which consists of San Luis Obispo County Services 10A (Southern Cayucos), Paso Robles Beach Water Association, the Cayucos Cemetery District and Morro Rock Mutual Water Company (Boyle, 2007)
	Groundwater	Yes; Alluvial; Cayucos Valley, Old Valley, Toro Valley & Morro Valley Basins Cayucos Area Water Organization well located in Old Valley Creek – downstream from Whale Rock Reservoir.
	Surface Water	Yes; Whale Rock Reservoir (San Luis Obispo 22,283 AFY, Cal Poly 13,707 AFY, California Men's Colony 4,570 AFY, Paso Robles Beach Water Association 222 AFY, County Service Area 10A 190 AFY, Cayucos-Morro Bay Cemetery District 18 AFY, Mainini Ranch 50 AFY, Ogle 14 AFY) (SLOCountyWater.org)

Cayucos Creek – Whale Rock Area Watershed

	Imported Water	Yes; agreements with City of SLO for transfer of 25 to 90 AFY from Nacimiento Water Project (Carollo, 2012)
	Recycled / Desalinated Water	None
	Key groundwater percolation area(s)	No data on key areas identified Basin recharge comes primarily from seepage of surface flows in creeks, deep percolation of precipitation, and residential/agricultural return flows. Old Valley basin recharge is augmented by dam underflow and seepage from reservoir releases. (Carollo, 2012)
	Water budget	None to date
	Water Uses	
	Beneficial Uses	*Cayucos Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Preservation of Biological Habitats of Special Significance (BIOL), Threatened, or Endangered Species (RARE), Estuarine Habitat (EST), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM). *Morro Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN) (CCRWQCB, 2011)
	Other Unique Characteristics	
	Whale Rock Reservoir	Whale Rock Reservoir is located on Old Creek Road approximately one-half mile east of the community of Cayucos. The project was planned, designed, and constructed under the supervision of the State Department of Water Resources. Construction took place between October 1958 and April 1961. The reservoir is jointly owned by the City of San Luis Obispo (55.05%), the California Men's Colony (CMC) (11.24%), and Cal Poly (33.71%). These three agencies, with the addition of a representative from the Department of Water Resources, form the Whale Rock Commission, which is responsible for operational policy and administration of the reservoir and related facilities. Day-to-day operation is provided by the City of San Luis Obispo.

		In April 1996, the downstream water rights agreement was amended and replaced with a new agreement, establishing water entitlements for adjacent and downstream water users. The downstream water users (Cayucos Area Water Organization or CAWO) affected by this agreement consist of three public water purveyors and the cemetery, plus two other rural/agricultural users, all in the Cayucos area. These agencies are the Paso Robles Beach Water Association, Morro Rock Mutual Water Company, County Service Area 10A, and Cayucos-Morro Bay Cemetery District.
	Historical Resources	Captain James Cass House (222 Ocean Ave., Cayucos); Cayucos Pier (PLN_DES_HISTORIC_POINTS GIS Layer)
	Los Padres National Park	Provides a diverse wildlife habitat with 23 threatened and endangered animals. The Forest has one endangered plant, two threatened plant species and 71 sensitive plant species. Management of riparian vegetation focuses on supporting fish and wildlife populations. There are over 870,000 acres of livestock grazing allotments in the Forest. Prehistoric and historic Native American sites, properties related to the practice of Indian and non-Indian religion, historic properties and districts are also in the Park. The Big Sur Coast is on of the outstanding features of the Los Padres National Forest. Several popular recreation facilities along the coast that attract visitors year-round. Land acquisitions in this area from 1992 to the present included a total of almost 9,300 acres. The Forest acquired the 1,226-acre Brazil Ranch in the Bixby Creek through a partnership with the Trust for Public Land.
	San Luis Obispo Coastal Zone	Spanning 118 miles of coastline with numerous wide sandy beaches, sheltered bays, and vista pints offering scenic views of the Pacific Ocean. - The coastal zone of San Luis Obispo County is known throughout the state for its beauty and diversity. The north coast is characterized by the rugged headlands to Big Sur. The rocky shoreline along the Hearst Ranch is highly valued for offshore views of marine mammals as well as scenic cliffs and rocky points. The beach, sandspit, and extensive wetlands of Morro Bay form a unique setting for wetland habitat study.
	Cayucos State Beach	Park operated by the State of California. Known for its fishing pier, beautiful beach and historical buildings. Buildings left over from the prospering old town still stand as a variety of shops such as restaurants, antique stores, and specialty items. The sandy beach offers mild weather, watersports such as surfing and swimming and tidepooling. There are picnic tables, play equipment, restrooms, and outside showers available. The pier is lit for night fishing.
	Hardie Park, Norma Rose Park (undeveloped), Paul Andrew Park	Group Day-Use facilities operated by the County of San Luis Obispo.

Cayucos Creek – Whale Rock Area Watershed

	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for County, not Watershed specific*

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.160000	-	Cambria	-	Cayucos	3310.16	Unidentified	Cayucos Creek
3310.170001	1	Cambria	7	Old	3310.17	Undefined	Cottontail Creek
3310.170002	1	Cambria	7	Old	3310.17	Undefined	Whale Rock Reservoir
3310.170003	1	Cambria	7	Old	3310.17	Undefined	Old Creek
3310.180000	8	Cambria	1	Toro	3310.18	Unidentified	Toro Creek

Major Changes in the Watershed

- Prehistorically the local area was inhabited by the Chumash people, who settled the coastal San Luis Obispo area approximately 10,000 to 11,000 BC, including a large village to the South of Cayucos at Morro Creek (Cayucos by the Sea).
- Captain James Cass left his New England home, sailed around the Horn and settled in Cayucos in 1867 on 320 acres of the original Rancho Moro Y Cayucos Spanish Land Grant of 8,845 acres. He realized the future possibilities of the excellent location as a shipping port of cheese, hides, beef and fresh water (Cayucos by the Sea).
- The Cayucos pier was constructed by Captain James Cass, the founder of Cayucos, in 1872 and was rebuilt and lengthened to 982 feet into deeper water in 1876. The pier was an immediate commercial success with steamships from Los Angeles and San Francisco docking several times per week. The severe drought of the late 1890's weakened Cayucos economically. And while in 1915 the pier received an economic boost when an abalone canning plant was built about half way out, it became less commercially viable through the early 1900's (Cayucos Pier Project).
- Pier became state property in 1920 and over the next 30 years once again became central to the economic health of the community. As residents of the San Joaquin Valley discovered Cayucos and its Mediterranean climate the pier became very popular with sport fishermen and has remained popular for generations. Anglers young and old have

caught a wide variety of fish including: red snapper, smelt, sea trout, halibut, salmon, rock fish, perch, shark and rays. For those who wanted larger catches and bigger fish, in the 1940's, 50's & 60's party boats used Cayucos as a fair-weather anchorage every summer. They took their customers deep water fishing north of Cayucos, loading and unloading fishermen from the pier (Cayucos Pier Project).

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Cayucos Creek*	Undetermined	Enterococcus	Agriculture	**Lower**: Spring: 0.82 cfs. Summer: 0.32 cfs.
Cottontail Creek	Undetermined	Not assessed	Undetermined	Not assessed
Old Creek*	Undetermined	Not assessed	Undetermined	**Lower**: Spring: 1.31 cfs. Summer: 0.45 cfs **Upper**: Spring: 0.83 cfs. Summer 0.33 cfs.
Toro Creek*	Undetermined	Fecal Coliform , Low Dissolved Oxygen	Industrial Activities (Oil), Natural Sources, Agriculture	**Lower**: Spring: 1.01 cfs Summer: 0.37 cfs
Morro Creek*	Undetermined	No	Undetermined	See instream flow study (Appendix C)
Whale Rock Reservoir	n/a	n/a	n/a	

** Indicates independent drainage to the Pacific Ocean*

Cayucos Creek – Whale Rock Area Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	**Estimated Safe Yield** (Carollo, 2012)	**Water Availability Constraints** (Carollo, 2012)	**Drinking Water Standard Exceedance**	**Water Quality Objective Exceedance**(CCRWQB, 2011)
Cayucos Valley	600 AF	Physical limitations and water quality issues. The shallow alluvial deposits are typically more susceptible to drought impacts	*Yes; see description below.	No for basin. No information for sub-basin
Old Valley	505 AF	Physical limitations, water rights and environmental considerations	**Yes; see description below.	No for basin. No information for sub-basin
Toro Valley	532 AF	Physical limitations, water quality	None	No
Morro Valley	1500 AFY	Physical limitations, water quality issues, and water rights	***Yes; see description below.	

Groundwater Quality Description: Toro Valley: Total dissolved solids (TDS) typically range between 400 to 700 mg/L. In the lower basin near Highway 1, petroleum hydrocarbon contamination associated with Chevron marine tracker terminal has been detected in groundwater and remedial activities are ongoing (Carollo, 2012).

*Analysis of groundwater from 32 wells in this basin taken during 1957 through 1993 show TDS content ranging from 346 to 2,462 ppm. Portions of the basin have chloride levels exceeding 100 ppm, indicating seawater intrusion has occurred (Carollo, 2012).

**Analyses of groundwater from 33 wells in this basin taken during 1957 through 1993 show TDS content ranging from 346 to 2,462 ppm. Portions have chloride levels exceeding 100 mg/L. (Carollo, 2012).

*** In the mid-1980's TDS concentrations in groundwater downstream of the narrows near Highway 1 began to exceed 1,000 mg/l seasonally due to sea water intrusion. Measured in 2007, basin TDS concentrations were typically between 400 and 800 mg/l and increasing toward the coast, except for an

area beneath agricultural fields in the lower valley where TDS concentrations reached 1000 mg/l, and nitrate concentrations reached 220 mg/l as nitrate (Cleath & Associates 1993a; 2007).

Critical Issues

Issue	***Potential Causes***	***Referenced from***
Treat to lagoon	Channelization, pollution	National Marine Fisheries Service, 2007
Loss of riparian width	Agriculture	National Marine Fisheries Service, 2007
Lack of enforcement		National Marine Fisheries Service, 2007
Water quantity	Agricultural and residential extractions	National Marine Fisheries Service, 2007
Erosion and Sedimentation		National Marine Fisheries Service, 2007
Sea Water Intrusion (Cayucos Valley basin)		Carollo, 2012
Nitrates	Agriculture	Carollo, 2012
Outdated Basin study – Cayucos Valley basin		Carollo, 2012
Alluvial water deposits subject to drought impacts		Carollo, 2012
Outdated groundwater basin analysis – Toro Valley		Carollo, 2012
Cayucos Creek 303(d) listed for enterococcus	Agriculture	Carollo, 2012
Toro Creek 303(d) listed for fecal coliform and low dissolved oxygen	Industrial Activities (Oil), Natural Sources, Agriculture	Carollo, 2012

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Cayucos Creek – Whale Rock Area Watershed

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Significant Studies in Progress:

San Simeon - Arroyo de la Cruz Area Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay 10	1, San Simeon	60,141 acres	Pacific Ocean (Monterey Bay National Marine Sanctuary)	Arroyo de la Cruz Valley, Piedras Blancas Point, San Simeon Point, San Simeon Valley, Santa Rosa Valley	County of San Luis Obispo, San Simeon, Cambria (ptn)

Existing Watershed Plans:

No existing plans to date

Description:

The San Simeon-Arroyo de la Cruz area watershed grouping (CalWater HUC 10 Scale) is located within the North Coast region of the county. This watershed drains approximately 51,500 acres and originates on the western slopes of the Santa Lucia Mountains, flowing to the Pacific Ocean at San Simeon State Beach. Although smaller creeks within this watershed grouping have direct drainages to the ocean, there are two major drainages – Arroyo de la Cruz and San Simeon Creek. Recharge of the aquifer comes from percolation of stream flow, deep percolation of precipitation and irrigation return flows. San Simeon Creek headwaters occur in the Coast Ranges to the northeast of Cambria. Elevations in the watershed range from 3,559 feet above sea level in the Santa Lucia Range at the eastern most watershed boundary to sea level along the coast. The dominant land use throughout the watershed is agriculture, specifically rangeland. The watershed includes the disadvantaged community of San Simeon, the northern portion of Cambria and the Hearst San Simeon State Historical Monument. San Simeon Estuary is located within San Simeon State Beach and is the home to several biotic communities including salt and freshwater marshes, grasslands, Monterey pine forest, as well as estuarine habitats. The watershed also contains multiple creeks that support critical Steelhead Trout habitat.

San Simeon - Arroyo de la Cruz Area Watershed

Characteristics:

	Physical Setting	
	Rainfall	Average Annual: 19 in. (coast) - 42 in. (mountains) (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1999-2012): 58°-77°F Winter Range (December 1999-2012): 45°-59°F (Hearst Castle, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Lower Arroyo de la Cruz sub-watershed has steep Franciscan non-infiltrative headwaters with a flat Franciscan low infiltrative valley. Upper Arroyo de la Cruz, Burnett Creek, Arroyo de los Chinos, Arroyo del Corral and Pico Creek have steep pre-Quaternary non-infiltrative headwaters with flat Franciscan low infiltrative valleys. Middle Arroyo de la Cruz, Oak Knoll Creek and Broken Bridge Creek sub-watersheds have steep Franciscan non-infiltrative headwaters (Bell, pers. comm., 2013). The name San Simeon refers to some of the geologic structures present in the area, particularly elements of the coastal Jurassic Age landforms and ophiolite mineral formations. The San Simeon Terrain is a mass of ophiolite, Franciscan Melange, and Lospe and Monterey Formation that lies on the west side of the San Simeon Fault and was considered to have moved along the San Simeon-Hosgri fault system. The area is part of the Coastal Melange Zone, with the main rock type being Franciscan Formation, a mixture of metamorphic and igneous rocks formed under high pressure and temperature during subduction 300 to 50 million years ago (Chipping, 1987) Present in this watershed are mainly marine-sedimentary and metasedimentary rocks. Nearer to the coast minor-marine and nonmarine parent rock types dominate with little metavolcanic rock and some scattered plutonic rock inclusions. The soils found in the watershed are moderate to well-drained fine to

		moderately coarse textured with moderate permeabilities in stream channels. Poor to moderately well drained, fine or clay soils, with shallow over nearly impervious layers with slow permeability. Sand and sandy loams near coast, predominately loam textured soils in middle region, and very cobbley and gravelly clay loams in hills. Groundwater is found in Holocene and late Pleistocene age alluvium that consists of sand, gravel, and clay and ranges to 130 feet thick (Carollo, 2012; Chipping, 1987).
	Hydrology	
	Stream Gage	Yes; USGS 11142500 (Arroyo de la Cruz near Hwy 1) The San Simeon Stream Gage Station is located at Lower San Simeon Creek (#22) 35-35-59 121-06-52 (USGS, viewed August 2013)
	Hydrology Models	No source identified
	Peak Flow	23,700 cfs (USGS, 1950-1979 viewed August 2013) San Simeon Creek 45,380 AFY (SLO County Flood Control and Water Conservation District, 2005)
	Base Flow	San Simeon Creek 1200 AFY (SLO County Flood Control and Water Conservation District, 2005)
	Flood Reports	No source identified
	Flood Control Structures	Bridges:1 over Hearst Ranch Creek on SLO San Simeon Road (PWD Bridges GIS layer) Cambria Flood Control Project: 1. Bypass channel along Santa Rita Creek in the West Village 2. Gravity pressure stormdrain system to collect runoff from central residential area and divert to Santa Rosa Creek
	Areas of Heightened Flood Risk	Cambria: poor drainage facilities, steep topography, location of residential parcels below street grade. Santa Rosa Creek in West Village – up to 8 feet of water in storms of 1995 Cayucos: steep topography, poor drainage network

San Simeon - Arroyo de la Cruz Area Watershed

	Biological Setting	
	Vegetation Cover	Primarily coastal oak woodland consisting of continuous, coast live oak; and non-native annual grassland mixed chaparral consisting of chamise, scrub oak and serpentine Manzanita; buckbrush and chamise chaparral; coastal scrub consisting of black sage; intermittent ponderosa pine; montane hardwood consisting of coast live oak; and open foothill pine. (SLO County vegetation shapefile, 1990) Many drainages in this watershed are lined with willow riparian scrub, and provide unique habitats for shorebirds, waterfowl and songbirds. *Data limited by age of shapefile*
	Invasive Species	Wild oats (*Avena fatua*), field mustard (*Brassica rapa*), and ripgut grass (*Bromus diandrus*), as well as rapidly spreading species, such as Italian thistle (*Carduus pycnocephalus*) and yellow star-thistle (*Centaurea solstitialis*) (Caltrans, 2006) *Data limited to observations, not complete inventory*
	Special Status Wildlife and Plants	*Key*: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Species	Status	ATASCADERO	CAYUCOS	CYPRESS MTN	MORRO BAY NORTH	MORRO BAY SOUTH
black legless lizard	SSC				x	x
California red-legged frog	FT	x	x	x	x	
coast horned lizard	SSC				x	
Coast Range newt	SSC			x		
globose dune beetle	SA		x		x	x

San Simeon - Arroyo de la Cruz Area Watershed

Species	Status	ATASCADERO	CAYUCOS	CYPRESS MTN	MORRO BAY NORTH	MORRO BAY SOUTH
monarch butterfly	SA		x		x	
Morro Bay blue butterfly	SA				x	x
Morro shoulderband (=banded dune) snail	FE				x	
pallid bat	SSC		x		x	x
San Luis Obispo pyrg	SA				x	
sandy beach tiger beetle	SA		x		x	x
southern steelhead - southern California DPS	FE		x			
steelhead - south/central California coast DPS	FT		x	x	x	
tidewater goby	FE		x		x	
western pond turtle	SSC	x	x	x	x	
western snowy plover	FT				x	
Plants						
adobe sanicle	SR; CRPR 1B.1		x			
Betty's dudleya	CRPR 1B.2		x		x	
Blochman's dudleya	CRPR 1B.1		x		x	x
Blochman's leafy daisy	CRPR 1B.2				x	
Brewer's spineflower	CRPR 1B.3	x			x	
California seablite	FE; CRPR 1B.1		x		x	
Cambria morning-glory	CRPR 4.2		x			
Carmel Valley bush-mallow	CRPR 1B.2	x		x		
compact cobwebby thistle	CRPR 1B.2		x			
Cook's triteleia	CRPR 1B.3			x		

San Simeon - Arroyo de la Cruz Area Watershed

Cuesta Ridge thistle	CRPR 1B.2	x			x	
Eastwood's larkspur	CRPR 1B.2		x	x	x	
Hardham's bedstraw	CRPR 1B.3			x		
Jones' layia	CRPR 1B.2		x		x	
late-flowered mariposa-lily	CRPR 1B.2					x
Miles' milk-vetch	CRPR 1B.2		x		x	
Monterey spineflower	FT; CRPR 1B.2					x
most beautiful jewel-flower	CRPR 1B.2	x		x	x	
Palmer's monardella	CRPR 1B.2	x			x	
San Benito fritillary	CRPR 1B.2				x	
San Joaquin spearscale	CRPR 1B.2		x		x	x
San Luis Obispo owl's-clover	CRPR 1B.2	x				
San Luis Obispo sedge	CRPR 1B.2	x		x	x	
Santa Lucia bush-mallow	CRPR 1B.2			x		
woodland woollythreads						

Steelhead Streams	Yes; Arroyo de los Chinos Creek, Arroyo de la Cruz Creek, Pico Creek, San Simeon Creek, Steiner Creek (Becker et. al., 2010.
Stream Habitat Inventory	Yes; DFG, August 1973 and September 1992 *Data limited by age of last inventory*
Fish Passage Barriers	Van Gordon Creek, 0.2 mile east (upstream) of Van Gordon Creek Rd. on San Simeon Creek Rd. ID #167; Unnamed Tributary of San Simeon Creek, 7 miles upstream of Hwy 1 on San Simeon Creek Rd., ID #46 (PAD Database)
Designated Critical Habitat	Yes; For Steelhead - San Simeon Hydrologic Sub-area 331013. Outlet(s) = Arroyo del Corral (Lat 35.6838, Long –121.2875); Arroyo del Puerto (35.6432, –121.1889); Little Pico Creek (35.6336, –121.1639); Oak Knoll Creek (35.6512, –121.2197); Pico Creek (35.6155, –

		121.1495); San Simeon Creek (35.5950, –121.1272) upstream to endpoint(s) in: Arroyo Laguna (35.6895, –121.2337); Arroyo del Corral (35.6885, –121.2537); Arroyo del Puerto (35.6773, –121.1713); Little Pico Creek (35.6890, –121.1375); Oak Knoll Creek (35.6718, –121.2010); North Fork Pico Creek (35.6886, –121.0861); San Simeon Creek (35.6228, –121.0561); South Fork Pico Creek (35.6640, –121.0685); Steiner Creek (35.6032, –121.0640); Unnamed Tributary (35.6482, –121.1067); Unnamed Tributary (35.6616, –121.0639); Unnamed Tributary (35.6741, –121.0981); Unnamed Tributary (35.6777, –121.1503); Unnamed Tributary (35.6604, –121.1571); Unnamed Tributary (35.6579, –121.1356); Unnamed Tributary (35.6744, –121.1187); Unnamed Tributary (35.6460, –121.1373); Unnamed Tributary (35.6839, –121.0955); Unnamed Tributary (35.6431, –121.0795); Unnamed Tributary (35.6820, –121.2130); Unnamed Tributary (35.6977, –121.2613); Unnamed Tributary (35.6702, –121.1884); Unnamed Tributary (35.6817, –121.0885); Van Gordon Creek (35.6286, –121.0942). (Federal Register- Vol. 70, No. 170 / Friday, September 2, 2005) California Red-Legged Frog (USFWS Critical Habitat Portal, viewed 2013)
	Habitat Conservation Plans	No; HCP/NCCP meeting occurred on 3.19.01 (D. Highland, CDFW files)
	Other Environmental Resources	San Simeon State Beach, William Randolph Hearst Memorial State Beach, Hearst Ranch Conservation Project, San Simeon Creek Groundwater Basin, Rocky Butte Botanical Area (SLO County Flood Control and Water Conservation District, 2007)

San Simeon - Arroyo de la Cruz Area Watershed

	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, Town of San Simeon, North portion of the Town of Cambria
	% Urbanized	3% (commercial, multi-family residential, and residential single family)(U.S. Census Block, 2010).
	% Agricultural	94.4% Agriculture (row crop, orchards, rangeland)(U.S. Census Block, 2010).
	% Other	1.4% rural land; 1.2% Recreation (U.S. Census Block, 2010).
	Planning Areas	North Coast Planning Area
	Potential growth areas	Hearst Corporation property; North Coast Planning Area, Hearst Castle staging area, San Simeon Village, Pine Resort Area (SLO County, 2011)
	Facilities Present	Piedras Blancas Light House, Hearst Ranch / Hearst Castle (Hearst San Simeon State Historical Monument), San Simeon State Park Three wells for Cambria Community Services District are located in Lower San Simeon Creek. Wastewater treatment spray fields are also located in this area. Treated wastewater infiltrates back into the groundwater aquifer.
	Commercial Uses	Industrial facilities - Cambria Rock (Sand and Gravel mine along San Simeon Creek); Rancho San Simeon Pit (Decomposed Granite Mine); Arroyo Del Oso Pit (Sand and Gravel mined at the mouth of Arroyo Del Oso Alo); Agriculture – majority rangeland; Recreation and tourism at San Simeon, Coastal Beaches, and Hearst Castle.
	Demographics	
	Population	998 in watershed (US Census Blocks, 2010) 450 in San Simeon (US Census Blocks, 2010) 392 in Cambria (US Census Blocks, 2010)
	Race and Ethnicity	Watershed: Caucasian, representing 27.7%. Latinos represent 6.57% in City. 16% are mixed race individuals with the remainder including African American, American Indian, and Asian (US Census Block, 2010) San Simeon: 55.3% Latino; 40% Caucasian; 1.7% Mixed Race; 1.3% Asian; 1.1% American

San Simeon - Arroyo de la Cruz Area Watershed

		Indian and Alaska Native (US Census Blocks, 2010) Cambria: 91% Caucasian; 5.4% Latino; 2% Mixed Race (US Census Blocks)
	Income	MHI $51,557 (U.S. Census Tracts, 2010) MHI $44,583 in San Simeon (US Census, 2010) MHI $76,271 in Cambria (US Census, 2010)
	Disadvantaged Communities	Yes; San Simeon (Department of Water Resources) 0.0% of individuals below poverty level in Watershed (US Census Tracts, 2010) 0.0 % of individuals below the poverty level in San Simeon (2007-2011 American Community Survey 5-Year Estimates) 5.0% of individuals below poverty level in Cambria (2007-2011 American Community Survey 5-Year Estimates)
	Water Supply	
	Water Management Entities	Cambria CSD, San Simeon CSD (Carollo, 2012)
	Groundwater	Yes; Alluvial; and Arroyo de la Cruz Valley, Piedras Blancas Point, San Simeon Point, San Simeon Valley, and Santa Rosa Valley Basins (Carollo, 2012)
	Surface Water	No public reservoirs (Carollo, 2012).
	Imported Water	None (Carollo, 2012)
	Recycled/Desalinated Water	The CCSD currently operates a wastewater treatment plant at the northern boundary of Cambria. The treated wastewater effluent is percolated into the ground between the San Simeon well field and the Pacific Ocean to create a hydraulic barrier that slows the fresh water underflow in the San Simeon Creek aquifer. This mound of fresh water also prevents seawater intrusion into the up-gradient potable groundwater aquifer, and maintains down-gradient surface flows. (CCSD Master Plan, 2008)
	Key Infiltration Areas	No data available
	Water Budget	Yes; Yates and Van Konyenburg, 1998. *Data limited by age of last water budget calculated*

San Simeon - Arroyo de la Cruz Area Watershed

	Water Uses	
	Beneficial Uses	*Arroyo del Corral* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), Estuarine Habitat (EST), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM) *Arroyo de los Chinos* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Threatened, or Endangered Species (RARE), Estuarine Habitat (EST), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM) *Arroyo de la Cruz* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM) *Oak Knoll Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Threatened, or

Endangered Species (RARE), Estuarine Habitat (EST), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM)

Pico Creek - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Preservation of Biological Habitats of Special Significance (BIOL), Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM)

San Simeon Creek Estuary - Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Estuarine Habitat (EST), Commercial and Sport Fishing (COMM) and Shellfish Harvesting (SHELL).

San Simeon Creek - Municipal & Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Fresh Water Habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH) and Commercial and Sport Fishing (COMM).

		Steiner Creek - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM) (CCRWQCB, 2011)
	Other Unique Characteristics	
	Cambria Mercury Mines	No longer operating, partially reclaimed, with annual reports indicating low concentrations of metals and salts continue to leave the site, sometime exceeding receiving water standards (New Times, 2009)
	San Simeon Point Conservation Easement	319 acres held by the California Department of Park and Recreation (National Conservation Easement Database, viewed 2013)
	California Trade Lands Easement	5 acres held by The Nature Conservancy (National Conservation Easement Database, viewed 2013)
	Cambria Pines Easement	1450 acres held by The Nature Conservancy (National Conservation Easement Database, viewed 2013)
	Hearst San Simeon State Historical Monument	- Ranch encompasses over 118,000 acres, 77,000 acres in San Luis Obispo County. Three Spanish land grants in the early 1840's were basis for the acquisition of the ranch property including Rancho Piedra Blanca, Rancho San Simeon and Rancho Santa Rosa - Attracts over one million visitors annually - Proposed development of five separate coastal areas for resort recreation and limited residential uses.
	San Simeon Acres	- Small commercial village developed to provide tourist and recreation services - Provides food and lodging facilities for Hearst Castle visitors as well as tourists driving Highway One. -Evolved from 1940 sale of the area by W. R. Hearst to facilitate recreational development

San Simeon - Arroyo de la Cruz Area Watershed

	North Coast Shoreline	- Valuable scenic and natural resource - Consists of low marine terraces with accessible beaches and coves, interspersed with rocky shorelines and steep bluffs. Offshore are rocks, reefs, and kelp beds. -The Monterey Bay Marine Sanctuary provides protection for rich offshore marine habitat.
	Monterey Pine Forests	- 2,500 acres surrounding Cambria - 500 acres at Pico Creek - Stands are extremely important as a "gene pool" – genetic variations found there protect some trees from pine pitch canker - Preservation of finer specimen stands recommended through use of open space easements, avoidance by development, and direct purchase. The introduction of hybrid species is discouraged
	North Coast Creeks	- Important fish streams for migration and spawning - Adjacent riparian and wetland areas provide wildlife habitat - Groundwater and surface waters linked, maintenance of creek habitats essential to protect coastal resources - Support number of declining species such as Tidewater Goby, Striped Garter Snake, Western Pond Turtle, Red-legged Frog and Steelhead Trout
	San Simeon Creek Lagoon	- Estuary located within San Simeon State Beach. - Composed of several biotic communities including salt and freshwater marshes, grasslands, Monterey pine forest, as well as estuarine habitats. - Supports steelhead trout and other fish species - Major waterfowl feeding and nesting site. Close to 190 bird species reported at lagoon and in adjacent areas
	Hearst San Simeon State Park	One of the oldest units in the Ca State Park System. Coastal bluffs offer scenic views of the ocean and rocky shore. A 3.3 mile trail runs through parts of San Simeon Natural Preserve and the Washburn Campground. The trail includes scenic overlooks, rest-stop benches and interpretive panels with information on wildlife and habitat.

San Simeon - Arroyo de la Cruz Area Watershed

		Santa Rosa Creek Preserve – includes valuable riparian forests and coastal wetlands, that provide habitat for endangered Tidewater Goby San Simeon Natural Preserve – contains vast wetlands, riparian areas, and several undisturbed native plant communities including mina mound topography. The Preserve is a wintering site for monarch butterfly populations. Pa-nu Cultural Preserve – 13.7 acres with the most significant archeological sites within the San Simeon State Park. The site has been dated to 5850 years before the present. Contains significant evidence documenting prehistoric technology, subsistence practices and social organization over the course of several centuries. W. R. Hearst Memorial Beach – Dedicated to the County in 1953. Has a 795 foot pier, completed in January 1969. Ownership transferred to State in 1970. The National Oceanic and Atmospheric Administration runs the Coastal Discovery Center at San Simeon Bay. It offers interactive exhibits and education programs which highlight the cultural and natural history of Old San Simeon, California State Parks and the Monterey Bay national Marine Sanctuary (parks.ca.gov)
	Piedras Blancas Light Station	Located on a rugged windswept point of land six miles north of Hearst Castle, along California's scenic Highway One. First illuminated as an aid to navigation in 1875, the lighthouse is still in operation. Access by guided tours only, operated by U.S. Dept of Interior, Bureau of Land Management (blm.gov).
	Historical Resources	Van Gordon Archaeological Site (Located in San Simeon State Park, 500 San Simeon Creek Road; San Simeon); Hearst Ranch (California 1, San Simeon); The Sebastian Store (442 Slo San Simeon Road, San Simeon) (PLN_DES_HISTORIC_POINTS GIS layer)
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for County, not watershed specific*

San Simeon - Arroyo de la Cruz Area Watershed

Watershed Codes

Calwater / DWR umber	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.110202	1	San Carpoforo	1	Breaker Point	310.11	Breaker Point	Arroyo de los Chinos
3310.120001	1	Arroyo de la Cruz	2	Undefined	310.12	Undefined	Upper Arroyo de la Cruz
3310.120002	1	Arroyo de la Cruz	2	Undefined	310.12	Undefined	Middle Arroyo de la Cruz
3310.120003	1	Arroyo de la Cruz	2	Undefined	310.12	Undefined	Lower Arroyo de la Cruz
3310. 120004	1	Arroyo de la Cruz	2	Undefined	310.12	Undefined	Burnett Creek
3310.130101	1	San Simeon	3	San Simeon Creek	310.13	San Simeon Creek	Steiner Creek
3310.130102	1	San Simeon	3	San Simeon Creek	310.13	San Simeon Creek	Lower San Simeon Creek
3310.130103	1	San Simeon	3	San Simeon Creek	310.13	San Simeon Creek	Upper San Simeon Creek
3310.130201	1	San Simeon	3	Oak Knoll	310.13	Oak Knoll	Broken Bridge Creek
3310.130202	1	San Simeon	3	Oak Knoll	310.13	Oak Knoll	Oak Knoll Creek
3310.130203	1	San Simeon	3	Oak Knoll	310.13	Oak Knoll	Arroyo del Corral
3310.130204	1	San Simeon	3	Oak Knoll	310.13	Oak Knoll	Pico Creek

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

Clark Colahan's 2011 account of the settling of the San Simeon Creek watershed by his ancestor EA Clark in *On the Banks of San Simeon Creek*, indicates that EA arrived in California in 1850, traveling by way of the Isthmus of Nicaragua and arriving in the spring of 1858, then homesteaded for a decade on San Simeon Creek in San Luis Obispo County. In *On the Banks*, Colahan compiled extensive diary entries which paint a picture of the developing commerce in the watershed related to the natural resources available, extracted or otherwise utilized in settling and developing a means of survival and providing sustenance.

- Coal mining—William Leffingwell discovered outcropping of coal on the beach south of San Simeon Creek in 1863 (Hamilton, 1999)
- Quicksilver (mercury in the form of cinnabar) mining began in mid 1860's
- Dairying began in mid-to late 1860's
- San Simeon - Leffingwell Landing used in the 1860's followed by pier in late 1860's as well as whaling pier in same time period

The general pattern of land use change in SSC watershed follows that of neighboring watersheds wherein the settlement period following division of Spanish land grants brought grazing, small agricultural concerns, mining, water diversion and pumping, followed by more intense dairy farming,

irrigated row crops, further land division, road building and more pumping for irrigated agriculture and residential development. As of the early 1990's, water resource availability has been the primary factor in the lack of continued development and sub-division in the watershed (Central Coast Salmon Enhancement, 2011).

Cambria:

- Located within Rancho Santa Rosa, an original Mexican land grant. Established in 1860's to accommodate shipping of mining and agricultural products in the central coast region.
- Once an important service center for pioneer residents of the coastal region. Locally produced products included whale oil, lumber, mercury, gold and dairy products, most of which were exported. Depletion of mineral resources and replacement of coastal shipping by inland transportation reduced Cambria's position of economic importance in the county.
- Continues to provide limited services to nearby agricultural areas. Role as a resort and retirement community grown in importance since 1920's.
- Today visitors come for pleasant natural setting, seashore and numerous recreational opportunities such as art, craft and antique shops and fine restaurants.
- Annual dry-season water shortage long been cause for concern. 1990-1993: mandatory conservation program which reduced consumption by approximately 28% compared to 1989.
- Early 1990's: Cambria CSD spray field operation changed to percolation pond system. Raised water well levels while serving as a hydraulic mound to slow fresh water outflow at ocean boundary.
- All new developments must participate in off-site plumbing fixture retrofit program – conventional plumbing fixtures replaced with low-flow fixtures

San Simeon

- 1878 – George Hearst, proprietor of Piedras Blancas Rancho built a new 1,000 foot wharf at a cost of $20,000.
- Piedras Blancas Lighthouse was built on the old property of Juan Castro. The light house was 100 feet high, built of brick and iron, and cost $100,000. It contains a Fresnel light of great power (Storke, 1891).
- On this coast there are a number of whaling stations ï¿½ at Monterey, San Simeon, Point San Luis, and Point Concepcion. The whaling business was begun here as early as 1864, and it has proved quite profitable. The least catch during the season was three whale, the greatest twenty-three. The whale hunts, conducted in open boats off these rugged coasts, is exciting but dangerous sport (Storke, 1891).

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Arroyo del Corral*	Undetermined	Not assessed	Undetermined	Not assessed
Arroyo de los Chinos*	Undetermined	Not assessed	Undetermined	**Lower**:

San Simeon - Arroyo de la Cruz Area Watershed

				Spring: 0.4 cfs. Summer: 0.22 cfs.
Broken Bridge Creek*	Undetermined	Not assessed	Undetermined	Not assessed
Burnett Creek	Undetermined	Not assessed	Undetermined	Not assessed
Arroyo de la Cruz*	Undetermined	Escherichia coli (E. coli), Low Dissolved Oxygen	Agriculture, Natural Sources, Grazing-Related Sources	**Lower**: Spring: 2.33 cfs. Summer: 0.71 cfs.
Oak Knoll Creek*	Undetermined	Not assessed	Undetermined	**Lower**: Spring: 0.63 cfs. Summer: 0.27 cfs.
Pico Creek*	Undetermined	Low Dissolved Oxygen	Grazing-related Sources, Unknown Sources, Natural Sources	Spring: 0.61 cfs. Summer: 0.27 cfs.
San Simeon Creek*	Ephemeral	Chloride, Nitrate, Lo Dissolved Oxygen, Sodium	Agriculture, Grazing related sources, Natural Sources, Wastewater – land disposal	**Lower**: Spring: 1.6 cfs. Summer: 0.52 cfs. **Middle**: Spring: 1.51 cfs. Summer: 0.5 cfs **Upper**: Spring: 0.79 cfs. Summer: 0.32 cfs.
Steiner Creek	Undetermined	Not assessed	Undetermined	Not assessed

**Indicates independent drainage to the Pacific Ocean*

Watershed Health by Major Groundwater Basin

Groundwater Basin	**Estimated Safe Yield** (Carollo, 2012)	**Water Availability Constraints** (Carollo, 2012)	**Drinking Water Standard Exceedance** (Carollo, 2012)	**Water Quality Objective Exceedance** (CCRWQCB, 2011)
Arroyo de la Cruz Valley	1,244 AFY (Envicom, 1982 / SLO County WMP, 2012)	None	None	None
Piedras Blancas Point	None	None	None	None
San Simeon Point	None	None	None	None
San Simeon Valley	1040 AFY (IRWMP, 2011)	The State Water Resources Control Board (State Board)	None	None

		allows a maximum extraction of 1,230 AFY in the San Simeon Valley Groundwater Basin and a maximum dry season extraction of 370 AF (Cambria CSD, 2008).		
Santa Rosa Valley	2,260 AFY (SLO County WMP, 2012)	None	None	None
Pico Creek	120 AFY (Cleath, 1986 / SLO County WMP, 2012).	The primary constraints on water availability in the basin include physical limitations and potential water quality issues. (	None	None

During January of 2003, CCSD began investigating the process of adjudicating the San Simeon Basin. To date, neither basin has been adjudicated (Cambria Community Services District, 2004).

CCSD Water Rights
Under CCSD's diversion permit for the San Simeon Basin, Permit No. 17287, the following restrictions apply:

- Maximum rate of diversion: 5.0 AF/day (2.5 cubic feet per sec [cfs])
- Maximum annual diversion: 1,230 AF
- Maximum dry season diversion: 370 AF. The dry season is defined as the date surface flow ceases at the Palmer Flats gaging station until October 31 of that year.

(Cambria Community Services District, 2004)

Groundwater supplies can be provided from either the San Simeon or Santa Rosa Creek wells. Both sources have appropriative water rights and, with the completion of water treatment facilities for the Santa Rosa Creek wells, the District's two supplies can be utilized conjunctively to manage groundwater levels in both basins (Kennedy and Jenks, 2000).

Groundwater Quality Description: (Groundwater samples from 31 wells collected from 1955 to 1994 show total dissolved solids (TDS) concentration ranging from 46 to 2,210 mg/l (DWR, 2003). Samples

from three public supply wells show a TDS concentration range of 400 to 420 mg/l with an average concentration of 413 mg/l. Manganese concentrations in the downstream regions of the basin have exceeded the MCL, with a range of 0.002 to 1.6 mg/l (Carollo, 2012).

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Loss of riparian vegetation		J. Nelson, pers. comm., 2013
Lack of instream flow	Excessive pumping/diversion	J. Nelson, pers. comm., 2013
Excessive sedimentation		J. Nelson, pers. comm., 2013
Gravel mining		J. Nelson, pers. comm., 2013
Grazing/Cattle		J. Nelson, pers. comm., 2013
Low dissolved oxygen kills fish in the lagoon		J. Nelson, pers. comm., 2013
Water pollution	Sewage leaks/overflow, general agriculture/row crops	J. Nelson, pers. comm., 2013
Poaching		J. Nelson, pers. comm., 2013
Sea Water Intrusion		Carollo, 2012
Currently the water supply of San Simeon CSD is at a certified Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (SLO County, 2008). As a result, a moratorium on development has been in place since 1991.		SLO County Flood Control and Water Conservation District, 2008
Outdated hydrological studies for area GW basins		Carollo, 2012
Arroyo de la Cruz 303(d) listed for Escherichia coli (E. coli), low dissolved oxygen	Agriculture, natural sources, grazing related sources	Carollo, 2012
Pico Creek 303(d) listed for low dissolved oxygen	Grazing related, natural sources	Carollo, 2012
San Simeon Creek 303(d) listed for chloride, nitrate, low dissolved oxygen, sodium	Agriculture, grazing related and natural sources, wastewater (land disposal)	Carollo, 2012

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Significant Studies in Progress:

The San Simeon Creek Watershed Management Plan was initiated by Greenspace-the Cambria Land Trust in 2011 and subsequently discontinued. A draft unpublished annotated bibliography document was produced.

Water Master Plan for Cambria: In-stream flow management study for San Simeon Creek. Water management strategy, small lot reduction ballot measure

Santa Rosa Creek Area Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay 10	Cambria WPA 2	46,997 acres	Pacific Ocean – (Monterey Bay National Marine Sanctuary)	Santa Rosa Valley, Villa Valley	County of San Luis Obispo Town of Cambria, Town of Harmony

Existing Watershed Plans:

Santa Rosa Creek Watershed Management Plan (Greenspace Cambria, 2010)

Cambria forest management plan (Greenspace Cambria, 2002)

Description:

Santa Rosa Creek Area Watershed lies within the southern portion of the California Coast Ranges. The watershed is bounded to the east by the Santa Lucia Mountain Range and to the west by the Pacific Ocean. The grouping of watersheds herein is consistent with the CalWater HUC 10 scale. The watershed contains 2 major sub-watersheds: Santa Rosa Creek, which contains Santa Rosa Creek and Green Valley (Perry Creek) and Villa Creek. Santa Rosa Creek and its tributaries flow mostly unobstructed down steep hill-slopes mantled with shallow soils and sparse shrub vegetation and through agricultural areas and the small town of Cambria before reaching the Pacific Ocean. Villa Creek begins in the Santa Lucia range flowing to the Pacific Ocean and encompassing a majority of the coastal area within the total watershed. The Town of Cambria is near the mouth of Santa Rosa Creek, downstream of the confluence with Perry Creek – the largest tributary in the Santa Rosa Creek sub-watershed. The urbanized area of Cambria is located within both the Santa Rosa Creek sub-watershed and the Villa Creek sub-watershed. Topography includes steep upland areas and low gradient valley bottoms bordering the reaches of Santa Rosa, Green Valley, Perry, and Villa Creeks. Cypress Mountain, the highest peak, lies in the Upper Santa Rosa creek watershed and reaches an elevation of approximately 3,411 ft. At its lowest elevation (sea level), Santa Rosa Creek flows through a lagoon contained by an annually formed sandbar at Moonstone Beach. The dominant land use is agriculture.

Santa Rosa Creek Area Watershed

Characteristics:

	Physical Setting	
	Rainfall	Average Annual: 15 in. (coastal) - 38 in. (mountains) (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 2012): 54°-70°F Winter Range (December 2012): 48°-59°F (Cambria, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Lower Santa Rosa Creek and Villa Creek: composed of steep Franciscan non-infiltrative headwaters; with flat pre Quaternary moderate infiltrative valley – Category #1 Steiner Creek, Upper Green Valley Creek, Upper San Simeon Creek and Upper Santa Rosa Creek: steep Franciscan non-infiltrative headwaters – Category #6 Lower Green Valley Creek and Lower San Simeon Creek: flat Franciscan low infiltrative valleys – Category #10 (Bell, pers. comm., 2013). This watershed is composed of Franciscan mélange: a mix of hard graywacke (sandstone) and weak, sheared argillite (silt/claystone) (Chipping 1987, Dibblee 2007a 2007b). Following the complete subduction of the Farallon Plate beneath the North American Plate, the eventual transition to a transform (strike-slip) plate boundary began about 25 million years ago with the gradual contact between the northwest-moving Pacific Plate and the southeast-moving North American Plate (Atwater and Molnar 1973). This transition marked a geologically brief period of coastal volcanism which locally produced the erosion-resistant Cambria Felsite rocks, as seen today at Scott Rock located east of Cambria near Taylor Creek (Dibblee 2007a). Other volcanic rocks formed during this period include the now highly weathered basalts and hardened tuffs (solidified volcanic ash) of the Obispo Formation that run along a northwest-trending band in the upper watershed. Terrestrial and marine sedimentary rocks formed during this period include a mix of hard, coarse-grained sandstones and weak, fine-grained shales (Greenspace Cambria, 2012)
	Hydrology	
	Stream Gage	Yes; upper watershed - USGS 11142200 (Santa Rosa Creek near Santa Rosa Creek Rd); lower watershed - SLO County San Simeon Station (718); SLO County Santa Rosa Station (716).
	Hydrology Models	Yes; part of the Highway 1 by-pass bridge project, 1999 and updated in 2002 for a pump station evaluation for the west village. The flow from

	that model was used in the design of Ferrasci road bridge. *Data limited by project scope, not watershed level model*
Peak Flow	3,350 cfs (upper Santa Rosa Creek) 12,000 cfs (lower Santa Rosa Creek), (USGS, viewed August, 2013)
Base Flow	0 – 5 cfs (USGS, viewed August, 2013)
Flood Reports	Yes; Cambria Drainage and Flood Control Study, February 2004; Raines, Melton and Carella, Inc.
Flood Control Structures	Bridges: 1 over Villa Creek on Villa Creek Rd; 1 over Harmony Valley Creek on Old Creamery Road; 6 over Santa Rosa Creek on Santa Rosa Creek Road (3), Burton Drive, Windsor Boulevard and Main Street; 4 over San Simeon Creek on San Simeon Creek Road; 1 over Leffingwell Creek on Moonstone Beach Drive. (PWD Bridges GIS layer) Additional by-pass channel; storm drains; pumping systems along Santa Rose Creek in West Village (SLO County Flood Control and Water Conservation District, 2009) Gravity Pressure Stormdrain System: Diverts residential runoff directly into Santa Rosa Creek (SLO County Flood Control and Water Conservation District, 2009) Dams proposed for San Simeon Creek near Van Gordon tributary, proposed Jack Creek Dam (Cambria Community Services District, 2004).
Areas of Known Flood Risk	The combination of the area's steep topography, lack of underground drainage facilities, and location of residential parcels below the street grade has resulted in localized poor drainage and/or flooding around some residences, buildings, and roadways. The magnitude of flooding varies by the districts in Cambria and by location in each district. Drainage from a number of uphill lots flows along the edge of street pavement and drains onto lower lots, creating flooding and erosion problems. Drainage problems also exist where curbs are present, but the topography creates conditions where lots adjacent to the roadway are much lower than the roadway surface. SLOCFCWCD has earmarked over $500,000 to fund one of the projects, has obtained funding assistance from the local community totaling $1.1 million and obtained a FEMA HMGP (Hazard Mitigation Grant Program) grant of $3.5 million towards regional flood improvements. Total cost for the unfunded projects is estimated to be $11.0 million (SLO County Flood Control and Water Conservation District, 2009). Villa Creek is a flood-prone natural drainage course that should be maintained in its natural state to protect native vegetation and wildlife habitats (SLO County Flood Control and Water Conservation District, 2009).

Santa Rosa Creek Area Watershed

Biological Setting	
Vegetation Cover	Primarily annual non-native grassland with continuous coast live oak woodland, Montane hardwood consisting mainly of coast live oak and black oak woodland, and Closed-Cone Pine-Cypress consisting of Monterey pine. Some coastal scrub and cypress forest present. (1990 vegetation layer) Grassland, scrub/shrub, mixed forest, evergreen forest, cultivated crops, woody wetlands, pasture/hay, and emergent herbaceous wetland (DFG, 2005) Willow riparian scrub is present along some coastal drainages in this watershed. *Data limited by age of shapefile.*
Invasive Species	Cape Ivy, Pampass grass (National Marine Fisheries Service, 2007) *Data limited in scope, not representative of entire watershed*
Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Species	Status	BURRO MOUNTAIN	CYPRESS MTN	LIME MTN	PEBBLESTONE SHUT-IN	PICO CREEK
Animals						
California red-legged frog	FT		x	x	x	x
Coast Range newt	SSC		x			
fringed myotis	SA					x
monarch butterfly	SA	x				x
prairie falcon	SA (Nesting)				x	x
steelhead - south/central California	FT		x		x	x

Species	Status	BURRO MOUNTAIN	CYPRESS MTN	LIME MTN	PEBBLESTONE SHUT-IN	PICO CREEK
coast DPS						
tidewater goby	FE					x
two-striped garter snake	SSC				x	x
western pond turtle	SSC		x		x	x
Yuma myotis	SA					x
Plants						
Arroyo de la Cruz manzanita	CRPR 1B.2				x	x
Carmel Valley bush-mallow	CRPR 1B.2		x		x	
Chorro Creek bog thistle	FE; SE; CRPR 1B.2				x	
Cook's triteleia	CRPR 1B.3		x		x	
Eastwood's larkspur	CRPR 1B.2		x			
Hardham's bedstraw	CRPR 1B.3		x		x	
late-flowered mariposa-lily	CRPR 1B.2				x	
Monterey pine	CRPR 1B.1					x
most beautiful jewel-flower	CRPR 1B.2		x	x	x	x
San Luis mariposa-lily	CRPR 1B.2				x	
San Luis Obispo owl's-clover	CRPR 1B.2					x
San Luis Obispo sedge	CRPR 1B.2				x	
San Simeon baccharis	CRPR 1B.2				x	
Santa Lucia bush-mallow	CRPR 1B.2		x		x	x
woodland woollythreads	CRPR 1B.2		x		x	x

Santa Rosa Creek Area Watershed

Steelhead Streams	Yes; Santa Rosa Creek Upper, Santa Rosa Creek Lower, Lower Perry Creek (DFG, 2005)
Stream Habitat Inventory	Yes; Santa Rosa Creek Steelhead Habitat and Population Survey completed in 2005 by California Department of Fish and Wildlife and California Conservation Corps
Fish Passage Barriers	Unnamed tributary to Santa Rosa Creek, Culvert at Santa Rosa Creek Road crossing, Partial barrier PAD# 712027.00000; Curti Creek, Culvert at Santa Rosa Creek Road crossing, Total barrier PAD# 712044.00000; Unnamed tributary to Santa Rosa Creek, Culvert at Santa Rosa Creek crossing, Total barrier PAD# 712043.00000; North Fork Santa Rosa Creek, Culvert at Santa Rosa Creek Road crossing, Total barrier PAD# 712045.00000; Unnamed tributary, Culvert at Highway 1 crossing, Unknown status PAD# 731784.00000; Fiscalini Creek, Culvert at road crossing, Unknown status PAD# 731365.00000; Perry Creek, Highway 46 bridge with potential passage constraints, Unknown status PAD# 736678.00000 Perry Creek, Culvert at road crossing, Unknown status (No ID #); Green Valley Creek, Highway 46 bridge with potential passage constraints, Unknown status PAD# 736483.00000; Unnamed tributary to Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736475.00000; Unnamed tributary to Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736538.00000; Unnamed tributary to Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736487.00000; Unnamed tributary to Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736431.00000; Unnamed tributary to Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736457.00000; Unnamed tributary to Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736621.00000; Green Valley Creek, Unspecified, Unknown status PAD# 716213.00000; Unnamed tributary to Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736625.00000; Green Valley Creek, Culvert at Highway 46 crossing, Unknown status PAD# 736583.00000 (Protected Access Database, viewed 2013)
Designated Critical Habitat	Yes; Steelhead Trout: Santa Rosa Hydrologic Sub-area 331014. Outlet(s) = Santa Rosa Creek (Lat 35.5685, Long –121.1113) upstream to endpoint(s) in: Green Valley Creek (35.5511, –120.9471); Perry Creek (35.5323–121.0491); Santa Rosa Creek (35.5525, –120.9278); Unnamed Tributary (35.5965, –120.9413); Unnamed Tributary (35.5684, –120.9211); Unnamed Tributary (USFWS Critical Habitat Mapper, viewed 2013) California red-legged frog (USFWS Critical Habitat Portal, viewed 2013)
Habitat Conservation Plans	Yes; A Habitat Conservation Plan was envisioned as part of the original request for proposals by the Cambria Community Services District as part of its effort to complete a comprehensive water master plan as well as its existing water supply and need for an evaluation of alternative water sources (Cambria Community Services District, 2004).

Santa Rosa Creek Area Watershed

Other Environmental Resources	San Luis Obispo Coastal Zone, Monterey Bay National Marine Sanctuary, Santa Rosa Creek Groundwater Basin, Cambria Monterey Pine Forest (SLO County Flood Control and Water Conservation District, 2007).
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo, Town of Cambria (portion), Town of Harmony
% Urbanized	2.45% total (0.2% Commercial, 0.25% Public Facilities, 2% residential) (SLO County LUC)
% Agricultural	93.35% (SLO County LUC)
% Other	4.2% total (2.6% rural lands, 0.3% recreation, 1.3% open space)(SLO County LUC)
Planning Areas	Adelaida, North Coast, Estero Planning Areas (SLO County)
Potential growth areas	Hearst Corporation property
Facilities Present	Cambria Wastewater Treatment Plant; CCSD well sites (Santa Rosa Creek)
Commercial Uses	Cambria Pit (Stone – Base Mine by Winsor Construction at Santa Rosa Creek Rd); Bianchi Quarry (Stone – Base Mine by Winsor Construction: North East Cambria); Land Red Rock Pit (Stone Mine by Negranti Construction at Hwy 46W) Recreation and tourism in Cambria; Wineries in Cambria and Harmony; Agriculture – rangeland, orchards, etc., Hearst Ranch
Demographics	
Population	5,941 in watershed (US Census Blocks, 2010) 5,601 in the town of Cambria(US Census Blocks, 2010)
Race and Ethnicity	Watershed: Caucasian, representing 76%. Latinos represent 21%. Asians represent 1.3%. The remaining races each represent less than 4%, including African American, American Indian, and Pacific Islander. (US Census Blocks, 2010) Cambria: Caucasian, representing 75.6%. Latinos represent 20.8%. Mixed Race represents 1.3%. (US Census, 2010)
Income	MHI $51,557 in watershed (US Census Tracts, 2010) MHI $75,747.5 in Cambria (U.S. Census, 2010)
Disadvantaged Communities	No; 1.5% of individuals are below poverty level in watershed (US Census Tracts, 2010) 5% of individuals below poverty level in Cambria (US Census, 2010)
Water Resources	
Water Management Entities	Cambria Community Services District (CCSD)
Groundwater	Yes; Alluvial; Santa Rosa Valley, Villa Valley

		Use of wells for domestic supplied water (CCSD) from Santa Rosa Creek The State Board allows a maximum extraction of 518 AFY in the Santa Rosa Valley Groundwater Basin and a maximum dry season extraction of 260 AF (Carollo, 2012) CCSD – Level III severity declaration for water supplies (CCSD Water Master Plan, 2008)
	Surface Water	No public reservoirs in the watershed. Identified as fully appropriated stream system for entire year according to the SWRCB's Water Code 1205-1207.
	Imported Water	None
	Recycled/ Desalinated Water	CCSD has made an effort over the past 15 years to bring a desalination operation to Santa Rosa/San Simeon. The most recent effort failed in 2012. Proposed water recycling plant for agricultural irrigation (Cambria Community Services District, 2004).
	Key groundwater percolation area(s)	None Identified: Recharge to the basin is largely by percolation of stream flow and, to a lesser extent, from infiltration of precipitation and excess irrigation flow (Ca. Dept. of Water Resources, 2003)
	Water Budget	Yes; Yates and Van Konynenburg, 1998 (Carollo, 2012). *Data limited by age since last report*
	Water Uses	
	Beneficial Uses	*Santa Rosa Creek Estuary* - Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Fresh Water Habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Commercial and Sport Fishing (COMM) and Shellfish Harvesting (SHELL). *Santa Rosa Creek* - Municipal & Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Fresh Water Habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH) and Commercial and Sport Fishing (COMM). *Green Valley Creek* - Municipal & Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Fresh Water Habitat (WARM), Rare, Threatened, or Endangered Species (RARE) and Commercial and

	Sport Fishing (COMM). *Villa Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), Estuarine Habitat (EST), Freshwater Replenishment (FRESH), and Commercial and Sport Fishing (COMM) (CCRWQCB, 2011)
Other Unique Characteristics	
Historical Resources	Arthur Beale House (Nitt Witt Ridge, 881 Hillcrest, Cambria); Guthrie-Bianchini House (2251 Center Street, Cambria); The Paul Squibb House (4063 Burton Drive, Cambria); The Bluebird Inn (1880 Main Street, Cambria); Carroll's Blacksmith Shop (Cinnabar, 4121 Burton Drive, Cambria); Heart's Ease (4101 Burton Drive, Cambria); Ian's Restaurant (2150 Center Street, Cambria); Robin's Restaurant (4095 Burton Drive, Cambria); The Brambles Restaurant (4005 Burton Drive, Cambria); Rigdon Hall Restaurant (4022 Burton Drive, Cambria); The Big Red House (370 Chelsea Lane, Cambria); The Bucket of Blood Saloon (Painted Sky Recording Studios, 4111 Bridge St, Cambria); Louis Maggetti's House (2261 Center Street, Cambria); Camozzi's (2262 Main Street, Cambria); Soto's Market (2244 Main Street, Cambria); The Leffingwell House (2420 Main Street, Cambria); The Olallieberry Inn (2476 Main Street, Cambria); The Lull House (1880 Main Street, Cambria); The Old Santa Rosa Chapel (2353 Main Street, Cambria); The Thorndyke House (4286 Bridge Street, Cambria); The First Presbyterian Church (4314 Bridge Street, Cambria); The Bank of Cambria (2255 Main Street, Cambria); Fog's End (2735 Main Street, Cambria) (PLN_SDE_PLN_DES_HISTORIC_Points GIS Layer)
Shamel Park	Day use park operated by the County of San Luis Obispo
Estero Bluffs State Park	355 acres consisting of grassland dominated coastal terrace that slopes from Highway One to the Pacific Ocean. The purpose of the park is to preserve and protect a rich, diverse, and scenic area of the Pacific Ocean coast. There are intertidal areas, wetlands, low bluffs and coastal terraces punctuated by a number of perennial and intermittent streams, as well as a pocket cove and beach at Villa Creek. The area provides a natural habitat for a number of endangered species including the snowy plover (slostateparks.com).
Harmony Headlands State Park	Located 2.6 miles south of Harmony. Constant winds and salt spray result in vegetation tolerant of these conditions. The flat coastal terraces, valleys and steep coastal bluffs are home to grasslands and coastal scrub containing plants such as San Luis Obispo morning glory, California buttercup, yarrow and lupine. The area contains diverse and unique habitats supporting rare, endangered and sensitive plant and animal

Santa Rosa Creek Area Watershed

		species (slostateparks.com).
	Cambria Pines Easement	1450 acres held by The Nature Conservancy (National Conservation Easement Database, 2013)
	Hearst Ranch	Hearst Ranch encompasses an impressive variety of habitats and topography - elevations on the Ranch rise from sea level along the coastline to 3,600 feet on some of the peaks along the ridgeline of the Santa Lucia Mountains. Grassland-covered coastal terraces extend to natural sea bluffs, rocky headlands and sandy beaches. Over 1,400 acres of riparian woodland is present on the property. Riparian woodland species include Sycamore and Coast live oak (Ca. Resources Agency, 2004).
	Climate Change Considerations	
		In the Santa Rosa Creek watershed, such a rise in sea-level would put new areas at risk of flooding, increase the likelihood and intensity of floods in areas that are already at risk, and accelerate shoreline recession due to erosion (Figure 2-6) (Heberger, et al. 2009). See also IRWMP, 2014 Section H. Climate Change *General County data, not specific to watershed*

Watershed Codes:

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.140201	1	Cambria	4	Santa Rosa	310.14	Green Valley Creek	Lower Green Valley Creek
3310.140101	1	Cambria	4	Santa Rosa	310.14	Santa Rosa Creek	Lower Santa Rosa Creek
3310.140202	1	Cambria	4	Santa Rosa	310.14	Green Valley Creek	Upper Green Valley Creek
3310.140102	1	Cambria	4	Santa Rosa	310.14	Santa Rosa Creek	Upper Santa Rosa Creek
3308.000603	0	Undefined	0	Undefined	308.00	Undefined	Villa Creek

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

- The first recorded accounts of Santa Rosa Creek valley are those made during the Portola Expedition where, in September 1769, the party encountered a “canyon… and arroyo surrounded with hills of pine”. On numerous instances, the expedition party noted flowing

streams, both along what is now known as the mainstem Santa Rosa Creek and from many of its "springs", or tributaries. Few other records of this area's natural resources were made for several decades despite the establishment of Mission San Miguel (1779) near present-day Paso Robles and the growing use of the Santa Rosa and San Simeon watershed areas for timber and wild game to support the Spanish population throughout the southern Coast Range region.

- 1840 – Don Julian Estrada granted possession of Rancho Santa Rosa, 13,200 ac land encompassing a portion of western half of watershed.
- In the early 1800's, the area of Cambria was established with rapid growth occurring between 1860 and 1880. The town of Cambria was established in 1866. Rapid urban population growth began in the 1950's with the population rowing from 788 in 1950 to 6,624 in 2009. Existing vegetation cover was cleared for land use activities which led to the widespread formation of erosion features and channel incision. Scrub/shrub vegetation cover would not begin to recover until the late 1900's.
- There was a severe drought in 1863-1864 which killed off a large portion of the livestock.
- Logging began in the watershed in 1779, with the peak of activity occurring between the late 1800's and the early 1900's. In 1916, logging declined steeply following the removal of old growth timber. The last saw mill in the area closed in 1971.
- In 1840 Cattle Ranching began in the watershed and continued to build through current day.
- In 1840, Don Julian Estrada was granted possession of Rancho Santa Rosa – a 13,200-ac land holding encompassing a portion of the western half of the watershed.
- In 1862, Mercury was discovered in the region. In 1874, Oceanic mine began production with activities increasing in 1916 associated with WWI.
- In the early 1870's the Estrada land was sold to George Hearst who converted the land to agricultural uses. This included the draining of a wetland area that extended from the Perry and Green Valley creek confluence north towards Santa Rosa Creek. This created an artificial stream course for lower Perry Creek which remains today.
- In the late 1800's, gullies were filled in to accommodate agricultural land uses.
- In 1939, Highway 1 and Santa Rosa Road were improved. IN 1964, the Highway 1 bypass was constructed around downtown Cambria.
- In 1974, Highway 46 was constructed through Green Valley.
- Floods occurred in the region in 1914, 1956, 1969, and 1995.
- 2001 –building moratorium based on limited water availability established
- 2005 - San Luis Obispo County stream crossing inventory and fish passage evaluation**,** Fiscalini streambank stabilization
- 2006 - Burton Street Bridge Barrier removal
- 2007-08 - Steelhead enhancement, bank stabilization, and educational signs downstream of Highway 1 Bridge
- 2010 - Non-native eucalyptus tree removal downstream of Highway 1
- 2011 - Ferrasci Road barrier removal

Santa Rosa Creek Area Watershed

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Green Valley Creek	Undetermined	Not assessed	n/a	Not assessed
Santa Rosa Creek	Undetermined	Temperature, water	Water Diversions, Urban Runoff, Agriculture, Disturbed Sites (Land Dev.), Grazing Related sources	Lower: Spring: 2.5 cfs. Summer 0.75 cfs. Upper: Spring: 2.5 cfs. Summer: 0.35 cfs
Villa Creek	Undetermined	Not assessed	None	Lower: Spring: 1.03 cfs. Summer: 0.38 cfs.

Watershed Health by Groundwater Basin

Groundwater Basin	**Estimated Safe Yield**	**Water Availability Constraints**	**Drinking Water Standard Exceedance**	**Water Quality Objective Exceedance**
Santa Rosa Valley	2,260 AFY (Cambria County Water District, 1976; Carollo, 2012)	Sea Water Intrusion (DWR, 1975) Wide seasonal fluctuation in groundwater availability (Carollo, 2012)	Yes; see description below.	None, CCRWQB, 2011
Villa Valley	1,000 AFY (DWR 1958; Carollo, 2012))	Physical limitations and water quality issues (Carollo, 2012)	None (Carollo, 2012)	None, CCRWQB, 2011

Groundwater Quality Description: Chloride content increased more than ten times from 80 ppm in 1955 to 933 ppm in 1975. Background chloride concentrations typically ranged from 30 to 270 ppm. One well had a concentration of 1,925 ppm in November 1961. The Santa Rosa Creek management plan also

reports corrosivity effects by water supplies and natural or industrial influenced balance of hydrogen, carbon and oxygen in the water which is affected by temperature and other factors.

Groundwater is found in alluvial deposits with an average specific yield of 17 percent. Groundwater is unconfined and generally flows westward. (Ca. Dept of Water Resources, 2003)

Holocene-aged alluvial deposits consist of unconsolidated sand, clay, silt, and gravel of primarily fluvial origin. Commonly, the deposits are about 100 feet thick beneath the center of the valley and more than 120 feet thick at the coast (Ca. Dept. of Water Resources, 2003)

Primary Issues

Issue	***Potential Causes***	***Referenced from***
Surface flow quantity	Extraction and diversions	Greenspace Cambria, 2012
Surface Water Temperature – Santa Rosa Creek 303(d) listed	Limited riparian cover	Greenspace Cambria, 2012
Low dissolved oxygen in lagoon	Low instream flows	Greenspace Cambria, 2012
Fine sediment in lower reaches	Historical land clearing	Greenspace Cambria, 2012
Fish Passage Barriers	Infrastructure changes over time	Greenspace Cambria, 2012
Non-native invasive species	n/a	Greenspace Cambria, 2012
Sedimentation	Grazing/Cattle	National Marine Fisheries Service, 2007.
Water Quantity	Groundwater extraction, low summer flow	National Marine Fisheries Service, 2007
GW basin seawater intrusion		Ca DWR, 2003
GW quality - chloride		Ca DWR, 2003
Outdated basin studies – Villa Valley basin		Carollo, 2012

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Significant Studies in Progress:

Lower Santa Rosa Creek Enhancement Plan

Water quality monitoring snapshot days (ongoing, annual), Cambria Community Services District.

3.2.3 North County Sub-Region

This sub-region includes the following watersheds:

Mid Salinas – Atascadero Area Watershed

Black Sulphur Spring Watershed

Cholame Creek Watershed

Estrella River Watershed

Huer Huero Creek Watershed

Lower San Juan Creek Watershed

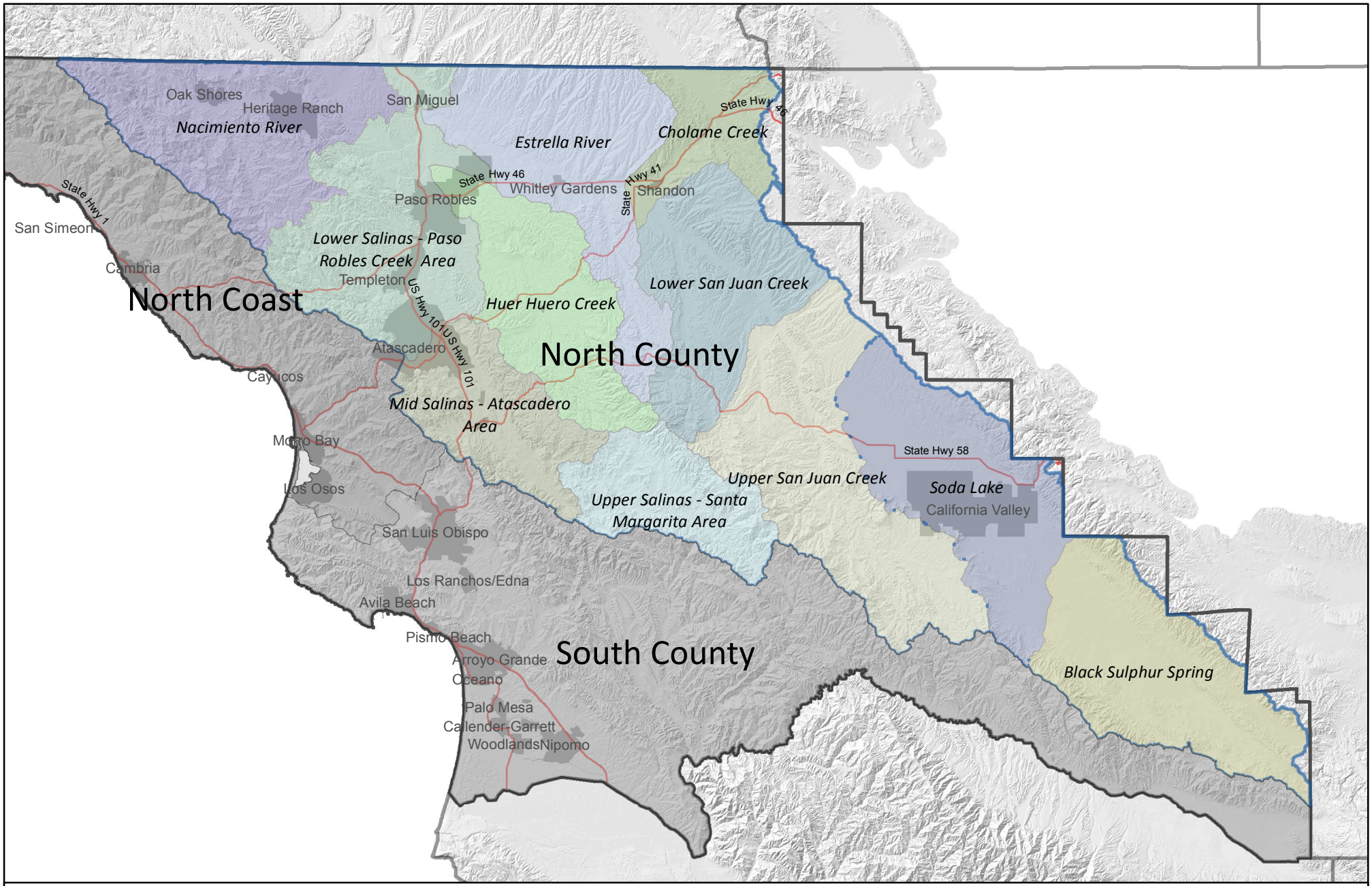
Nacimiento River Watershed

Lower Salinas - Paso Robles Creek Area Watershed

Upper Salinas - Santa Margarita Area Watershed

Soda Lake Watershed

Upper San Juan Creek Watershed



San Luis Obispo County Watersheds
North County Water Planning Area

RESOURCE CONSERVATION DISTRICTS

Mid Salinas – Atascadero Creek Area Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Salinas 9	Santa Margarita WPA 12, Atascadero/ Templeton WPA 13	82,156 acres	Salinas River to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles; Atascadero sub-Basin; Rinconada Valley	County of San Luis Obispo, City of Atascadero, Town of Santa Margarita, Los Padres National Forest

Description:

The Atascadero Creek - Mid Salinas Watershed is located in northern San Luis Obispo County and includes a portion of the Salinas River and adjacent tributaries. The drainage rises to a maximum elevation of approximately 2,800 feet above mean sea level with steep topography categorizing much of the western portion of the watershed. The watershed contains two major drainages; Atascadero Lake and Parole Canyon. The watershed contains a mix of urban and rural residential land uses as well as agricultural land uses. A portion of the Los Padres National Forest is also contained within the watershed along the western boundary. The City of Atascadero is located at the northern end of the watershed boundary and the community of Santa Margarita is located within the central and southern portions of the watershed. Other land uses include two quarries, Atascadero Lake, and a wastewater treatment plant. Water supply for the watershed area is dominated by wells, including those used by the Atascadero Mutual Water Company to supply urban residents and commercial uses.

Existing Watershed Plans:

Salinas River Watershed Action Plan

Mid Salinas – Atascadero Creek Area Watershed

	Physical Setting	
	Rainfall	Average annual: 21-37 inches (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990- 2012): 52°-92°F Winter Range (December 1990-2012): 32°-61°F (Paso Robles (*not in watershed*), NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Rincon Creek is composed of flat highly infiltrative Quaternary material. Santa Margarita Creek and Hale Creek sub-watersheds have steep pre-Quaternary non-infiltrative headwaters with steep moderately infiltrative early to mid-Tertiary valleys. Trout Creek has steep pre-Quaternary non-infiltrative headwaters with flat highly infiltrative Quaternary valleys. Calf Canyon, Moreno Creek and Pilitas Creek have steep pre-Quaternary non-infiltrative headwaters. Paloma Creek sub-watershed has moderately infiltrative early to mid-Tertiary headwaters with flat Quaternary highly infiltrative valleys (Bell, pers. comm., 2013). Water Bearing Formations. The principal water-bearing unit is Quaternary age alluvium (Carollo, 2012). The Middle Salinas-Atascadero Watershed is more complex than northern San Luis Obispo Counties other watersheds because it is dissected by the Rinconada Fault. Atascadero draws water from a sub-basin, a pocket located on the western edge of the main basin (just 3 percent of the basin) that is smaller, narrower and replenishes water far more easily with rainfall. The Rinconada Fault separates the two. The local public water utility doesn't need a treatment plant because the natural geology along the Salinas River in Atascadero allows it to treat the water by filtering it through a sandy layer adjacent to the Salinas River (Tribune, 2013). The Santa Margarita Formation in this watershed is present as Miocene aged, nearly white, coarse, arkosic sandstones which are interbedded with small amounts of mudstone, siltstone, diatomite, and conglomerate. The sandstones are commonly massively cross-bedded, indicative of a high energy, shallow marine bottom depositional environment. Minerals indicate a granitic origin for the sands, while the pebbles in the conglomerates appear to have been reworked from older conglomerates. Some beds are tuffaceous, and some diatomaceous beds altered to chert by redeposition of silica. Significant in environmental interpretation of the

		formation are the thick biostromes, consisting of masses of pectin, oyster shells, and broken shell debris. Such masses appear to have been storm constructed masses. They imply shallow water, high energy conditions, as supported by thick shells of many fossils, deposited in a structural trough between the Rinconada and Nacimiento fault zones, reaching 2,000 ft thick northeast of Santa Margarita but 200 feet west of Atascadero (Chipping, 1987). Southern Salinas Valley contains extensive outcroppings of Monterey Formation. The Hames member forms extensive outcrops between Atascadero and Santa Margarita. The Monterey Formation is dominated by thin, siliceous shales, and diatomaceous beds, which contains few, thin phosphatic beds. Sandstones are usually calcareous, well-cemented, and laced with small calcite veins. Some beds, like Graves Creek near Atascadero for example, were buried while still in a slurry-like state, and injected into overlying beds as sandstone dikes. The calcareous nature of the Monterey Formation is due to the high foraminifera content (Chipping, 1987). The Salinas Valley near Santa Margarita is bounded by the Sur-Nacimiento Fault on the east and Rinconada Fault to the west. The Sur-Nacimiento fault marks the boundary between the old oceanic crust of the Franciscan mélange to the west, and the Salinian continental crust made up of granite to the east. The Salinan granite basement extends to the San Andreas Fault to the east. The Salinan Block represents a slice of continental granitic crust sandwiched between two oceanic crustal plates of the younger Franciscan on the west, and the older Franciscan of the San Joaquin Valley to the east. The Rinconada Fault is a branch off the SAF and continues N until it goes offshore N of Monterey. It is a right lateral wrench similar to the San Andreas and forms the mountains on the west side of the Salinas Valley. The fault passes through Paso Robles and is the source of the mineral hot springs in town (Chipping, 1987).
	Hydrology	
	Stream Gage	Yes; USGS 11145500 (Salinas River near CA-58); USGS 11145000 (Salinas River at Las Pilitas Road); USGS 11144600 (Salinas River near Santa Margarita Lake) (USGS, viewed August 2013)
	Hydrology Models	Yes; Klinchuch. 2012. Groundwater model to analyze the sustainability of the Atascadero Sub-basin;

		Montgomery Watson, 1997, Monterey County Water Resource Agency's Salinas Valley Integrated Groundwater and Surface Water Model Update, Final Report; Todd Engineers, Oct 2013, Paso Robles Groundwater Basin Model.
	Peak Flow	16,600 cfs (USGS, viewed August 2013).
	Base Flow	7.5 cfs (USGS, viewed August 2013).
	Flood reports	None
	Flood Control Structures	Bridges: 1 over Rinconada Creek on Pozo Road; 2 over Salinas River on Las Pilitas Road; 3 over Las Pilitas Creek on Las Pilitas Road; 5 over Santa Margarita Creek on El Camino Real, Walnut Avenue, Norte Road, Linden Ave and Tassajara Creek Road; 4 over Yerba Buena Creek on H Street, J Street, I Street and Encina Avenue; 1 over Tassajara Creek on Tassajara Creek Road (PWD Bridges GIS layer)
	Areas of Heightened Flood Risk	Creeks in Atascadero overflow banks and cause local flooding • Major flooding problems in Santa Margarita are caused by inadequate culverts/ bridges, and inadequate channel capacity in Yerba Buena Creek, where water overtops the banks and floods adjacent low topographic areas. • Santa Margarita has a serious lack of sufficient drainage ditches, culverts, and storm drains. These facilities are often under maintained and filled with sediment or debris, which prevents the drainage system from properly conveying urban runoff to Yerba Buena and Santa Margarita Creeks. • Proposed Solutions (2009): Construction of a levee and major retention basins to address frequently recurring flooding problems • Proposed Improvements (2009): The local CSA 23 advisory group has been active in mobilizing community support for the projects and pursuing an easement for the levee and retention basins from the owners of adjacent Santa Margarita Ranch (SLO County Flood Control and Water Conservation District, 2009).
	Biological Setting	
	Vegetation Cover	Primarily chamise-redshank chaparral consisting mainly of continuous chamise; mixed chaparral consisting mainly of continuous buckbrush chaparral; and valley oak woodland

		consisting mainly of intermittent valley oak, blue oak and coast live oak; with non-native annual grassland; coastal scrub consisting mainly of continuous chamise; blue oak-foothill pine consisting of continuous blue oak and coast live oak; blue oak woodland; and cropland. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile*
	Invasive Species	Star thistle, tocolote, spotted knapweed, Blue gum/Eucalyptus (Althouse and Meade, 2005) *Data limited to observations, not complete inventory*
	Special Status Wildlife and Plants	*Key*: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Special Species of Concern, CRPR – CA rare plant rank (CNDDB, viewed August 2013) *Data limited to observations, not complete inventory*

Species	Status	ATASCADERO	LOPEZ MTN	SAN LUIS OBISPO	SANTA MARGARITA	SANTA MARGARITA LAKE	TEMPLETON	WILSON CORNER
Animals								
American badger	SSC				x			
Atascadero June beetle	Special Animal	x					x	
California linderiella	Special Animal				x			
California red-legged frog	FT	x	x		x			
Coast Range newt	SSC		x	x				
ferruginous hawk	Special Animal (Wintering)		x		x			
foothill yellow-legged frog	SSC				x			
golden eagle	Fully Protected	x						
grasshopper sparrow	SSC (Nesting)				x			
loggerhead shrike	SSC (Nesting)		x					
merlin	Special Animal (Wintering)		x					
pallid bat	SSC	x						

prairie falcon	Special Animal (Nesting)		x	x	x	X	x
purple martin	SSC (Nesting)	x	x				
San Luis Obispo pyrg	Special Animal			x			
silvery legless lizard	SSC		x				
Townsend's big-eared bat	SSC				x		
western pond turtle	SSC	x	x	x	x		
western spadefoot	SSC				x		x
white-tailed kite	Fully Protected		x		x		
Plants							
Brewer's spineflower	CRPR 1B.3	x		x			
Cambria morning-glory	CRPR 4.2		x	x			
caper-fruited tropidocarpum	CRPR 1B.1		x				
Cuesta Pass checkerbloom	SR	x		x			
Cuesta Ridge thistle	CRPR 1B.2	x		x			
dwarf soaproot	CRPR 1B.2			x			
Eastwood's larkspur	CRPR 1B.2	x				x	
Hardham's evening-primrose	CRPR 1B.2				x		
hooked popcornflower	CRPR 1B.2	x		x			
Hoover's bent grass	CRPR 1B.2		x			x	
La Panza mariposa-lily	CRPR 1B.3				x	x	
mesa horkelia	CRPR 1B.1	x		x		x	
Miles' milk-vetch	CRPR 1B.2	x			x		
most beautiful jewel-flower	CRPR 1B.2	x					
pale-yellow							

	layia	CRPR 1B.1				x				
	Palmer's monardella	CRPR 1B.2	x		x		x			
	Pecho manzanita	CRPR 1B.2		x						
	round-leaved filaree	CRPR 1B.1	x			x		x		
	San Benito fritillary	CRPR 1B.2			x					
	San Luis mariposa-lily	CRPR 1B.2	x		x					
	San Luis Obispo County lupine	CRPR 1B.2		x						
	San Luis Obispo owl's-clover	CRPR 1B.2		x						
	San Luis Obispo sedge	CRPR 1B.2	x		x		x			
	Santa Lucia manzanita	CRPR 1B.2		x	x					
	Santa Margarita manzanita	CRPR 1B.2	x	x	x					
	shining navarretia	CRPR 1B.2				x				
	straight-awned spineflower	CRPR 1B.3	x	x		x				
	yellow-flowered eriastrum	CRPR 1B.2	x			x	x	x	X	
	Steelhead Streams	Yes; Atascadero (Hale) Creek (FR 50) Atascadero (Hale) Creek, Santa Margarita Creek, Tassajara Creek, Salinas River (US-LT RCD, 2002)								
	Stream Habitat Inventory	Yes; DFG, 2005								
	Fish Passage Barriers	PAD ID: 707003– Bedrock waterfall on Atascadero Creek. Total Barrier. 22.565639 miles upstream. PAD ID: 707244- Utility crossing on Atascadero Creek at Curbail Avenue. Temporal Barrier. 25.51314 miles upstream. PAD ID: 719388- Dam at Atascadero Park on unnamed tributary to Atascadero. Unknown Status. PAD ID: 731745- Road crossing at Highway 41 on unnamed tributary to Atascadero Creek. Unknown Status. PAD ID: 732138- Road								

		crossing at Highway 41 on unnamed tributary to Atascadero Creek. Unknown Status. PAD ID: 707246- Culvert under Highway 101 on Santa Margarita Creek. Total Barrier. 5.52855 miles upstream. PAD ID: 712052- Road Crossing at El Camino Real Bridge on Santa Margarita Creek. Partial Barrier.69.42864 miles upstream. PAD ID: 707245- Culvert on Santa Margarita Creek. Temporal Barrier. 7.00901 miles upstream.
	Designated Critical Habitat	Yes; Atascadero (Hale) Creek for Steelhead Trout (NMFS CFR 50 226) Steelhead Trout: Tassajara (trout) creek, Santa Margarita Creek, Salinas River (US Fish and Wildlife – Critical Habitat Mapper) California Red-Legged Frog (USFWS Critical Habitat Portal, viewed 2013)
	Habitat Conservation Plans	Yes; North San Luis Obispo County Habitat Conservation Program – Multiple species, initially San Joaquin kit fox. *HCP general for North County, not watershed specific*
	Other Environmental Resources	Salinas River, Paso Robles Groundwater Basin, Salinas Reservoir/Santa Margarita Lake, Los Padres National Forest, Santa Lucia Wilderness, Cuesta Ridge Botanical Area, Rinconada Mine Botanical Area (SLO County Flood Control and Water Conservation District, 2007)
	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, City of Atascadero, Town of Santa Margarita
	% Urbanized	9.6% in City of Atascadero, 0.05% Commercial (majority in Santa Margarita), 5% residential (majority Santa Margarita and South Atascadero: non-city)
	% Agricultural	42% rangeland, small scale vineyard and crop production.
	% Other	12.6% open space (Los Padres national Forest), 0.04% Public Facilities, 0.2% recreation, 3% rural lands
	Planning Areas	Salinas River Planning Area
	Potential growth areas	Eagle Ranch (South Atascadero); Santa Margarita Ranch; City of Atascadero Urban Core, South Atascadero
	Facilities Present	Atascadero Wastewater Treatment Plant discharges to the Salinas River; Atascadero Lake; Los Padres National Forest, The Garden Farms Water District
	Commercial Uses	City of Atascadero – Urban Core, Santa Margarita Ranch, hobby vineyards, Livestock and Ag – east Salinas River, Kaiser Quarry, Rocky Canyon Quarry (Union Asphalt), Santa Margarita Quarry (Hansen Aggregates), various industrial facilities, agricultural service provides, residential service

		providers, commercial districts, restaurants, wine related tourism
	Demographics	
	Population	24,098 in watershed (U.S. Census Block, 2010). 19,333 in Atascadero (US Census Blocks, 2010) 386 in Garden Farms (US Census Blocks, 2010) 1,259 in Santa Margarita (US Census Blocks, 2010)
	Race and Ethnicity	Watershed: Caucasians representing 76%, Latinos representing 16.3%, Mixed-race individuals representing 2.4%, Asians representing 2.2%, African Americans representing 2.2% of the total population in the watershed. The remaining races include Native American, Pacific Islander, and other. Atascadero: 74% Caucasian; 18% Latino; 2.5% Mixed Race; 2.4% Asian (US Census Blocks, 2010) Garden Farms: 87.3% Caucasian; 10.4% Hispanic or Latino; 1.3% Asian (US Census, 2010) Santa Margarita: 76.5% Caucasian; 16.4% Hispanic or Latino; 3.2% Mixed Race; 2.2% Asian; 1.2% American Indian and Alaska Native (US Census, 2010)
	Income	MHI $60,676 for watershed (U.S. Census Tracts, 2010). MHI $68,502 in Atascadero (US Census, 2010) MHI $49,032 in Santa Margarita (US Census, 2010)
	Disadvantaged Communities	No; 7% of individuals are below poverty level in the watershed (U.S. Census Tracts, 2010). 8.7% of individuals are below poverty level in Atascadero (US Census, 2010) 16.7% of individuals are below poverty level in Garden Farms (2007-2011 American Community Survey 5-Year Estimates) 18.9% of individuals are below poverty level in Santa Margarita (2007-2011 American Community Survey 5-Year Estimates)
	Water Resources	
	Water Management Entities	Atascadero Mutual Water Company, County Waterworks District No. 6 County Waterworks District No. 6: three wells located near the alluvium of Yerba Buena Creek that provide water to residents of Santa Margarita Atascadero Mutual Water Company – Salinas River wells

		located in the Atascadero Sub-basin that provide water to the City of Atascadero and surrounding areas.
	Groundwater	Yes; Paso Robles; Atascadero sub-Basin; Rinconada Valley
	Surface Water	No public reservoirs. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Board and no future plans exist to increase these demands beyond the current allocations. (Carollo, 2012)
	Imported Water	Yes; Nacimiento Pipeline (Atascadero Mutual Water Company)
	Recycled/Desalinated Water	Yes; The City of Atascadero uses reclaimed water from the Wastewater Treatment Plant for use at Heilman Regional Park and Golf Course, as well as recharge for the Atascadero Sub-basin of the Paso Robles Groundwater Basin.
	Key Infiltration Areas	No comprehensive study has been completed to date. The main source of recharge in the alluvium is the Salinas River. Recharge to the Paso Robles Formation occurs from the overlying Salinas River alluvium as well as from overlying channel deposits of the Santa Margarita, Atascadero, Graves, and Paso Robles Creeks (Carollo, 2012)
	Water Budget	Yes; Todd Engineers, 2013, Paso Robles Groundwater Basin Model Update *Water budget limited by lacking well data*
	Water Uses	
	Beneficial Uses	*Atascadero Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), and/or Early Development (SPWN). *Atascadero Lake* - Municipal and Domestic Supply (MUN), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Freshwater habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Navigation (NAV), and/or Early Development (SPWN). *Salinas River (Nacimiento River-Santa Margarita Reservoir)*

		- Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PRO), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE) and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	Historical Resources	Santa Margarita de Cortona (22515 H Street, Santa Margarita) (PLN_DES_HISTORIC_POINTS GIS layer)
	Los Padres National Monument	Ecosystems in Los Padres National Forest range from semi-desert in interior areas to redwood forest on the coast. Forest vegetation classified into two major types: chaparral and forested lands. Provides a diverse wildlife habitat with 23 threatened and endangered animals. Member of the California Condor Recovery Program, and has been an active player in the reintroduction of California condors in the wild. The Forest has one endangered plant, two threatened plant species and 71 sensitive plant species. Management of riparian vegetation focuses on supporting fish and wildlife populations. There are over 870,000 acres of livestock grazing allotments in the Forest.
	Heilman Regional Park, Santa Margarita Community Park and Chalk Mountain Golf Course	Group day-use facilities owned and managed by the County of San Luis Obispo.
	Atascadero Lake Park	Man-made lake managed by the City of Atascadero. There is a walking path that follows the edge of the lake for a stroll, jog or bike ride lakeside. The park also has a playground, paddle/kayak boats, workout stations, restroom facilities, large and small barbecue areas, horseshoe pits, sand volleyball court and the Charles Paddock Zoo.
	Stadium Park	During the 1920's, Stadium Park was a gathering place for community events, concerts, and theater. Performances were held on a big stage under an Oak tree. That stage was later moved to where the Atascadero Lake Pavilion now stands. Besides being a beautiful park, it is a natural amphitheater with gently sloping hills leading to the basin. Acoustics are ideal just as nature made them.
	Sunken Gardens	Inspired by “The Grand Basin” at the 1904 St. Louis World’s Fair, Atascadero founder E.G. Lewis envisioned a formal Sunken Garden to adorn the civic center in his new colony.

Mid Salinas – Atascadero Creek Area Watershed

		Restored in 2005 as originally designed with walkways crossing the length and width of the gardens and meeting at a central fountain designed by architect Walter D. Bliss of the San Francisco firm of Bliss and Faville.
	Climate Change Considerations	
		See IRWMP, 2014 Section H. Climate Change *Data is general for county, not watershed specific*

Watershed Codes:

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3309.811303	8	Paso Robles	1	Atascadero	309.81	Parole Canyon	Pilitas Creek
3309.811304	8	Paso Robles	1	Atascadero	309.81	Parole Canyon	Rincon Creek
3309.811306	8	Paso Robles	1	Atascadero	309.81	Parole Canyon	Moreno Creek
3309.811401	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Santa Margarita Creek
3309.811402	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Calf Canyon
3309.811403	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Paloma Creek
3309.811404	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Hale Creek
3309.811405	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Henry
3309.811408	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Trout Creek

Major Changes in the Watershed

- Since late 1700's Salinas River Valley used for agriculture. After Spanish missionary priests established the mission at San Luis Obispo, they built Santa Margarita de Cortona Asistencia in 1817 to provide crops and livestock.

Atascadero

- First building in the area in 1812. Adobe that served as the southern grazing outpost for Mission San Miguel Portions of the adobe walls stood until late 1900's near Traffic Way.
- 1876 – A. F. Benton purchased the Eagle Rancho, near the headwaters of Atascadero Creek. Uses the land the raise hogs, but as many encounters with grizzly bears that make ranching difficult, but attracts big game hunters to the area (Storke, 1891).
- During 19th century cattle ran in large tracts that had been Mexican land grants. Toward the end of the century, J. H. Henry consolidated a number of tracts into the 23,770 acre Atascadero Ranch.
- During the early 20th century, U.S. Army used the central plains of the ranch for annual encampments and maneuvers and at one time considered the acquisition of the ranch for permanent military camp.
- In 1913, Edward Gardner "E. G. Lewis" selected the Atascadero Ranch as the ideal location for a model colony. Lewis purposely chose a location halfway between major urban center of the state on both a railway and state highway.
- Lewis subdivided the entire 38 square miles, built 100 miles of roads, a water system of tanks, wells and mains, nearly 3,000 acres of orchards, parks, the Sunken Gardens and public buildings.
- A twenty-mile road through the Santa Lucia Mountains connecting the Colony to the 1,000 acre Atascadero Beach properties near Morro Bay which had schools, a community center, hospital and hotel.
- Two important factors that stimulated growth in the 1950's have also significantly affected design and demographics of the community: bisection of the City in 1954 by Highway 101, and the siting of the Atascadero State Hospital on the edge of the community in 1956.
- 2006 – Severely eroded bank on south side of Atascadero Creek repaired. Rock slope protection installed along the bank and heavily vegetated with native riparian species.

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Salinas River	Undetermined	Yes; Sodium and Chloride	Undetermined	Not assessed
Atascadero Creek (Hale)	Perennial	Yes on 303d list for Chloride, E. coli, Fecal Coliform, Low Dissolved Oxygen, and Sodium.	NP: Agriculture, grazing-related, natural sources, resource extraction, petroleum activities,	**Lower**: Spring: 0.99 cfs. Summer: 0.37 cfs.

		TMDL estimated date of completion 2021.	transient encampments MP: None defined as such on 303d list	
Paloma Creek	Undetermined	Not assessed	Undetermined	Not assessed
Santa Margarita Creek	Undetermined	Not assessed	Undetermined	**Upper**: Spring: 0.81 cfs. Summer: 0.32 cfs.
Calf Canyon Creek	Undetermined	Not assessed	Undetermined	**Upper**: Spring: 0.49 cfs. Summer: 0.24 cfs.
Moreno Creek	Undetermined	Not assessed	Undetermined	Spring: 0.53 cfs. Summer: 0.24 cfs.
Trout Creek	Undetermined	Not assessed	Undetermined	**Upper**: Spring: 0.63 cfs. Summer: 0.27 cfs.
Rincon Creek	Undetermined	Not assessed	Undetermined	Not assessed
Pilitas Creek	Undetermined	Not assessed	Undetermined	Spring: 0.65 cfs. Summer: 0.28 cfs.

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County RCS, 2011)	Physical limitations, water rights and water quality issues (Master Water Report).	Yes; see description below.	None (CCRWQCB, 2011)
Atascadero	None (Carollo, 2012)	Water rights and physical limitations (SLO County WMP, 2012)	The 2008 Water Quality Report for both Templeton CSD and Atascadero MWC found that none of the tested regulated and secondary substances in water samples exceeded their	None (CCRWQCB, 2011)

			MCL values (Carollo, 2012)	
Rinconada	None (Carollo, 2012)	Physical Limitations (SLO County WMP, 2012)	None (Carollo, 2012)	None (CCRWQCB, 2011)

Groundwater Quality Description:

Paso Robles Groundwater Basin: Based on Todd monitoring report (2007), the Basin was not at the safe yield although some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggests groundwater pumping was approaching the safe yield of the Basin, which led to the recommendation to do a groundwater management plan. The Resource Capacity Study prepared by the San Luis Obispo County Planning Department in November 2010 states that the Basin is near or at perennial yield, and contains land use and water use monitoring and conservation recommendations within the authority of the County and District to help ensure the sustainability of the Basin into the future (Paso Robles Groundwater Basin – Groundwater Advisory Committee, 2011).

The predominant cations are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West, 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissoved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study, (Fugro West 2001b), 23 of 74 samples collected exceeded one or more drinking water standards. The maximum contaminant level (MCL) for nitrate was exceeded in 4 samples (Fugro West, 2001b). Water quality trends indicate an increasing concentration of TDS and chloride in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012).

Salinas River recharge typically contains calcium and magnesium bicarbonate. Santa Margarita Creek water contains magnesium-calcium-bicarbonate. Atascadero and Paso Robles Creeks have calcium bicarbonate rich waters. Increasing Total Dissolved Solids and chlorine, physical limitations (Carollo, 2012).

Atascadero sub-basin: In terms of physical limitations, Todd (2009) estimated the gross groundwater pumping in the sub-basin during 2006 to be 15,545 AF, which is 95 percent of the sub-basin perennial yield of 16,400 AFY. Ongoing studies may revise the estimated outflow from the sub-basin. According to Fugro (2010), whereas total groundwater in storage in the main part of the Paso Robles Groundwater Basin is predominantly in the Paso Robles Formation, the Salinas River alluvium in the Atascadero Groundwater Sub-basin accounts for a significant percentage of the total groundwater storage in the sub-basin. Pumping from the alluvium should be accounted for separately from pumping from the Paso Robles Formation.

Primary Issues

Issue	***Potential Causes***	***Referenced from***
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal	Carollo, 2012

	supply wells, golf course irrigation, and a relatively dense aggregation of rural "ranchette") users	
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012
Limited Groundwater Basin information (Rinconada basin)		Carollo, 2012
Atascadero (Hale) Creek 303(d) listed for chloride, Escherichia coli (E. coli), fecal coliform, low dissolved oxygen, sodium	Agriculture, grazing related and natural sources, resource extraction petroleum activities, transient encampments	Carollo, 2012

Groundwater: Paso Robles Groundwater Basin

According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Significant Studies in Progress:

Black Sulphur Spring Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Carrizo Plain 11	Carrizo Plain WPA 10	143,160 acres total; 137,489 acres within San Luis Obispo County	Soda Lake	Carrizo Plain	County of San Luis Obispo, Bureau of Land Management

Description:

The Black Sulphur Spring Watershed lies in the eastern portion of San Luis Obispo's North County region and includes the southern portion of the Carrizo National Monument. The total watershed area is approximately 143,160 acres with a majority of the acreage located within San Luis Obispo County (137,489 acres). The remaining acreage is located within Kern County to the East. The watershed is bounded by Temblor Range to the east, Caliente Range and San Juan Hills to the west and drains entirely into Soda Lake. The Black Sulphur Watershed contains two major drainages: the Caliente Range and Elkhorn Plain. The highest elevation in the watershed is about 3,411 feet and the lowest elevation is approximately 1,919 feet. Elkhorn Plain is in this watershed, draining toward the basin floor. The watershed is transected by San Andreas Fault. The groundwater basin underlying the watershed, the Carrizo Plain basin, is recharged from percolation of stream flow and infiltration of precipitation. Users of the basin include a small public water system serving local school, agricultural and residential purposes, and solar farms. The dominant land use is rangeland.

Existing Watershed Plans:

No existing plans to date

Black Sulphur Spring

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 7-13 in. (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1991-2012): 64°-88°F Winter Range (December 1991-2012): 39°-52°F (Carrizo NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Carrizo Plain and Elkhorn Scarp sub-watersheds composed of flat highly infiltrative Quaternary geologic material. Beam Flat, Abbot Canyon, Goat Spring, and Cottonwood Spring are composed of moderate steep moderately infiltrative early to mid-Tertiary headwaters and flat highly infiltrative Quaternary inland. Cochora Ranch, and Simm sub-watersheds are steep moderately infiltrative early to mid-Tertiary materials (Bell, pers. comm., 2013). Groundwater is found in alluvium and the Paso Robles and Morales Formations. Upper Pleistocene to Holocene alluvium consists of unconsolidated to loosely consolidated sands, gravels, and silts with a few beds of compacted clays. Paso Robles Formation. The Pleistocene age Paso Robles Formation consists of poorly sorted, mostly loosely consolidated gravels, sands, and silts. The combined thickness of these deposits is more than 3,000 feet in the eastern portion of the basin along the San Andreas fault and decreases toward the west. Morales Formation. The Upper Pliocene Morales Formation consists of sands, gravels, and silts, which generally are more stratified and compacted than in the overlying Paso Robles Formation (Chipping, 1987).
	Hydrology	
	Stream Gage	No
	Hydrology Models	None
	Peak Flow	No source identified
	Base Flow	No source identified
	Flood Reports	No source identified
	Flood Control Structures	No source identified
	Areas of Heightened Flood Risk	No source identified
	Biological Setting	
	Vegetation Cover	Primarily annual grassland and alkali desert scrub. Valley saltbush

Black Sulphur Spring

	scrub with juniper and California sagebrush are common (SLO County vegetation shapefile, 1990) *Data limited due to age of shapefile* CNPS recently (2013) completed a vegetation survey of the Carrizo Plain National Monument. Mapped vegetation characterized stands to the alliance level. Desert scrub, alkaline/scrub, coastal scrub, chaparral, woodlands, saline and alkali marshes, grasslands and herblands, and arroyo wash alliances were all represented. Juniper and blue oak woodlands are primarily on the southwestern edge of the watershed in the hills. Alkali, desert, and coastal scrub are common on eastern hills. Goldfield-plantain-fescue fields are common along the basin floor. Alkali wetlands and marsh vegetation are patchy in thenorthern watershed south of soda lake. Many additional alliances are mapped in small patches. The CNPS inventory provides high-resolution vegetation data at fine scale for this watershed. Vernal pools, alkali wetlands, and rare arid-land plant communities are important resources with small areal extent in this watershed (Althouse and Meade, 2013). *Data limited to observations, not complete inventory*
Invasive Species	Slim oat (*Avena barbata*), Common wild oat (*Avena fatua*), Black Mustard (*Brassica nigra*), Bromegrass (*Bromus Diandrus*), Red brome (*Bromus rubens*), Italian thistle (*Carduus pycnocephalus*), Spear thistle (*Cirsium vulgare*), Cut-leaved cranesbill (*Geranium dissectum*), Farmer's foxtail (*Hordeum marinum*), Italian ryegrass (*Lolium multiflorum*), Foxtail fescue (*Vulpia myuros*), Tamarisk (*Tamarix* spp.) (California Native Plant Society, 2011) *Data limited to observations, not complete inventory*
Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Black Sulphur Spring

Species	Status	BALLINGER CANYON	CALIENTE MTN	CUYAMA	ELKHORN HILLS	FELLOWS	MARICOPA	MCKITTRICK SUMMIT	PAINTED ROCK	PANORAMA HILLS	REWARD	WELLS RANCH
Animals												
American badger	SSC								x			x
blunt-nosed leopard lizard	FE; SE; FP	x			x		x	x	x	x		x
burrowing owl	SSC				x				x			
California condor	FE; SE	x										
giant kangaroo rat	FE; SE	x	x	x	x		x		x	x		x
Kern primrose sphinx moth	FT	x	x	x	x	x				x		x
Morrison's blister beetle	SA				x							
mountain plover	SSC (Wintering)				x				x	x		x
Nelson's antelope squirrel	ST				x				x	x		x
pallid bat	SSC								x			
prairie falcon	SA (Nesting)	x	x	x				x	x	x		x
San Joaquin kit fox	FE; ST	x		x	x		x	x	x	x		x
San Joaquin whipsnake	SSC	x							x			
short-nosed kangaroo rat	SSC									x		x
Swainson's hawk	ST			x	x							
Tulare grasshopper mouse	SSC									x		x
western spadefoot	SSC	x										
Plants												
California jewel-flower	FE; SE				x				x			x
chaparral ragwort	CRPR 2B.2									x		
Coulter's goldfields	CRPR 1B.1				x				x	x		
Jared's pepper-grass	CRPR 1B.2				x				x	x		x
Kern mallow	FE				x				x	x		x
Lemmon's jewel-flower	CRPR 1B.2		x						x			

Black Sulphur Spring

Species	Status	BALLINGER CANYON	CALIENTE MTN	CUYAMA	ELKHORN HILLS	FELLOWS	MARICOPA	MCKITTRICK SUMMIT	PAINTED ROCK	PANORAMA HILLS	REWARD	WELLS RANCH
Lost Hills crownscale	CRPR 1B.2								x			x
Munz's tidy-tips	CRPR 1B.2				x				x			x
oval-leaved snapdragon	CRPR 4.2		x									x
pale-yellow layia	CRPR 1B.1				x			x			x	x
recurved larkspur	CRPR 1B.2								x	x		
round-leaved filaree	CRPR 1B.1		x									x
San Joaquin woollythreads	FE		x		x	x			x	x		x
showy golden madia	CRPR 1B.1				x							x
stinkbells	CRPR 4.2		x									x
Temblor buckwheat	CRPR 1B.2				x					x		

Steelhead Streams	None
Stream Habitat Inventory	None
Fish Passage Barriers	No source identified, fish populations not historically supported
Designated Critical Habitat	None
Habitat Conservation Plans	Yes; Carrizo Plain Natural Area Plan, Stewardship Council Land Conservation Plan
Other Environmental Resources	Carrizo Plains National Monument and Ecological Reserve and Soda Lake, San Andreas Fault Zone of Eastern San Luis Obispo County, Caliente Wildlife Area (SLO County Flood Control and Water Conservation District, 2007)
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo, BLM - Carrizo Plains National Monument
% Urbanized	0% (Land Use Category GIS Layer)
% Agricultural	62% (SLO County Land Use Category GIS Layer)
% Other	38% (Rural) (SLO County Land Use Category)
Planning Areas	Shandon-Carrizo Planning Area
Potential growth areas	None Identified

Black Sulphur Spring

	Facilities Present	None identified
	Commercial Uses	Agriculture, tourism
	Demographics	
	Population	2 (US Census Block, 2010)
	Race and Ethnicity	Latinos represent 100%.
	Income	MHI $65,482 in watershed (US Census Tracts, 2010, spans 11 watersheds)
	Disadvantaged Communities	No; 7.0% of individuals are below poverty level in watershed (US Census Tracts, 2010, spans 11 watersheds)
	Water Supply	
	Water Management Entities	None; users served by individual wells
	Groundwater	Carrizo Plain (total storage capacity is estimated at 400,000 af)
	Surface Water	No public reservoirs in the watershed.
	Imported Water	None
	Recycled/ Desalinated Water	None
	Key groundwater percolation area(s)	No key percolation areas identified - Recharge to the basin is largely by percolation of stream flow and infiltration of rainfall to the valley floor (Ca. Dept of Water Resources, 2003)
	Water budget performed	Yes; Aspen Environmental Group, 2011 for Topaz Solar Farm. *Data limited to region affected by the Topaz Solar Farm, which is similar to, but not included in this watershed*
	Water Uses	
	Beneficial Uses	*Soda Lake* - Industrial Service Supply (IND), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Fresh Water Habitat (WARM), Significance (BIOL), Rare, Threatened, or Endangered Species (RARE) and Commercial and Sport Fishing (COMM) (CCRWQB, 2011)
	Other Unique Characteristics	
	San Andreas Fault Zone	The San Andres Fault traverses the eastern portion of the county and is one of the most seismically active faults in North America. The fault zone is important from a botanical and geological standpoint. The San Andres Fault in the Carrizo Plain has the largest post-early Miocene offset and is the oldest reach of the entire active fault system. (The sag ponds along the fault have special ecological significance (Pollard et. al., 1995).

Black Sulphur Spring

	Carrizo Plain National Monument	A cooperative effort since 1985 between Bureau of Land Management, California Fish and Wildlife and the Nature Conservancy. 250,000 acres of relatively undisturbed habitat.
	Elkhorn Plain Ecological Reserve	A 160 acre, semi-desert state reserve with many unusual plants: the endangered San Joaquin wooly threads, desert boxthorn, cottony and spotted buckwheat, Arizona popcorn flower, Kern Tarplant and thistle sage. Has a population of blunt nose leopard lizard.
	Caliente National Cooperative Land and Wildlife Management Area	Includes 58,000 acres of Bureau of Land Management property. Caliente Mountain, part of the Cuyama River Watershed, is the highest peak in the county at more than 5,100 feet. Partially or entirely in the range of the California Condor and Blunt Nosed Leopard Lizard, endangered species, and San Joaquin Kit Fox, a rare species.
	Vernal Pools	Present in the Black Sulphur Spring watershed. These pools are more alkaline than pools of the Paso Region. Rare plants and wildlife utilize vernal pool habitat in the Carrizo.
	San Joaquin Kit Fox	Carrizo Plain supports a core population of federally endangered San Joaquin Kit Fox. Additionally, giant kangaroo rat precincts are known from Black Sulphur Spring watershed. Blunt nose leopard lizard and Nelson's antelope squirrel are known from the Elkhorn Plain. Rare plants of limited extent in the state and globally are reported from this watershed.
	Wildflower Fields	Mid-March to mid-April is the usual time for wildflower season, but it is dependent on the weather and varies from season to season. Temperature and rainfall affect which flowers bloom. Every year is not spectacular and only a few flowers may prevail in some years. Typical species include: goldenbush shrubs, bush lupine, pale yellow astragalus, locoweed, filaree, yellow tropidocarpum, white popcorn flower, orange fiddleneck, poppies, hillside daises, sun cups and baby-blue eyes. One of the three remaining habitats for the California jewelflower as well as other special status plants (BLM, 2013)
	Climate Change Considerations	
		Saltbrush and other native shrubs are expected to decline and marginal farmland may become less productive and retired in the Carrizo Plain area. Pronghorn and Tule elk populations could decline. (ClimateWise, 2010). See IRWMP, 2014 Section H. Climate Change *General County data, not watershed specific*

Black Sulphur Spring

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic sub-area name	SWRCB Number	CDF Super Planning	Sub-watersheds (CDF Watershed Name)
3311.000103	0	Undefined	0	Undefined	311.00	Panorama Hills	Old Cooper Ranch
3311.000201	0	Undefined	0	Undefined	311.00	Elkhorn Plain	South of Cochoro ranch
3311.000202	0	Undefined	0	Undefined	311.00	Elkhorn Plain	Beam Flat
3311.000203	0	Undefined	0	Undefined	311.00	Elkhorn Plain	Elkhorn Scarp
3311.000204	0	Undefined	0	Undefined	311.00	Elkhorn Plain	Cochora Ranch
3311.000301	0	Undefined	0	Undefined	311.00	Caliente Range	Abbot Canyon
3311.000302	0	Undefined	0	Undefined	311.00	Caliente Range	Goat Spring
3311.000303	0	Undefined	0	Undefined	311.00	Caliente Range	Cottonwood Spring
3311.000304	0	Undefined	0	Undefined	311.00	Caliente Range	Lawson Spring
3311.000404	0	Undefined	0	Undefined	311.00	West of Soda Lake	Simm
3311.000500	0	Undefined	0	Undefined	311.00	Soda Lake	Soda Lake / Carrizo Plain (ptn)

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

- 4000-8000 years before present – The Carrizo Plains were a meeting place for Salinan, Yokut, Chumash and other Indian tribes. Vaqueros Formation rock monoliths are decorated with art that is being protected today.
- 1780 – First contact by Europeans. Large herds of sheep, horse and cattle brought into the area by Spanish. Introduce non-native species to the Carrizo grasslands
- 1857 – Major earthquake that shaped much of the natural landscape of the Carrizo Plains area (Pollard et. al., 1995)
- 1876 – First homesteads established on Carrizo Plains. Dry grain farming was intensive after invention of mechanized agricultural equipment in 1912, resulting in as much as 2 feet of top soil loss in some field margins
- 1939 to Post World War II – A combination of good weather and post War expansion led to increased profitability and productivity of the areas farms and ranches.

Black Sulphur Spring

- 1964 – Creation of California Valley. Chicote Ranch, a 7,500 acre ranch just south of 58, was divided into two-and-a half acre parcels which were promoted all over the state as retirement homes.
- 2001 – Carrizo Plain National Monument created by President Clinton under the authority of the Antiquities Act of 1906.

Source: Santa Margarita Historical Society, http://www.santamargaritahistoricalsociety.org/pages/carrisa_plains.html unless otherwise noted

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)
Abbot Canyon	Unknown	None	n/a
Beam Flat	Unknown	None	n/a
Carrizo Plain	Unknown	None	n/a
Cochora Ranch	Unknown	None	n/a
Cottonwood Spring	Perennial	None	n/a
Elkhorn Scarp	Unknown	None	n/a
Goat Spring	Unknown	None	n/a
Simm	Unknown	None	n/a

Watershed Health by Major Groundwater Basin

Groundwater Basin	**Estimated Safe Yield**	**Water Availability Constraints**	**Drinking Water Standard Exceedance**	**Water Quality Objective Exceedance, Table 3-8**
Carrizo Plain	8000-11,000 AF (Carollo, 2012)	Physical limitations and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts (Carollo, 2012).	Yes; see description below.	Exceeds usable mineral quality for total dissolved solids, chloride, sulfate, boron, sodium, and nitrogen (CCRWQB, 2011).

Black Sulphur Spring

Groundwater Quality Description: Analyses of groundwater from 79 wells in this basin during 1957 through 1985 show Total Dissolved Solids (TDS) content ranging from 161 to 94,750 ppm. A highly mineralized groundwater zone is found in the lower part of the alluvium and the upper part of the Paso Robles Formation where they underlie Soda Lake. Water in a deeper zone Paso Robles Formation is of higher quality and confined in the vicinity of Soda Lake. Groundwater in the Morales Formation is likely to be brackish. Locally high nitrate and salinity concentrations as well as high Selenium and Arsenic as result of geology (Carollo, 2012).

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Groundwater quality		Carollo, 2012
Groundwater Quantity	Physical Limitations	Carollo, 2012
Outdated Studies of the GW basins		Carollo, 2012

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Significant Studies in Progress:

Cholame Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estrella 17	Cholame WPA 15	151,701 acres total with 47,300 acres in San Luis Obispo County	Estrella River– to Salinas River and Pacific Ocean (Monterey bay National Marine Sanctuary)	Paso Robles	County of San Luis Obispo, Shandon (ptn)

Photo: Althouse and Meade

Existing Watershed Plans:

No existing plans to date

Description:

The Cholame Watershed is located in the North easterly portion of San Luis Obispo County and crosses the county line entering Monterey County to the North. 47,300 acres of the total 151,701 acres are located in SLO County. The watershed is drained by Cholame Creek and its tributaries southeastward and westward into the Estrella River (a tributary to the Salinas River) with the confluence of the Estrella River and Cholame Creek occurring at the town of Shandon. The Cholame Creek watershed is a lightly-populated rural setting and drains into an alluvial valley and surrounding mountains within an ecosystem characterized of grassland, chaparral, oak woodland, and sagebrush and minor amounts of cropland, primarily consisting of grain or hay crops. The dominant land use is agriculture. The area around Shandon Valley is generally used most intensively for agriculture because of better soils and water availability. Irrigated production has increased during the last 10 years, particularly in vineyards and alfalfa. Dry farming and grazing operations encompass the rest of the agricultural uses. The highest watershed elevation within the County limits is at approximately 2,476-feet with the lowest elevation occurring at approximately 1,017-feet. The watersheds headwaters are in Diablo Range in Monterey County.

Cholame Creek Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 11-14 in. (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 53°-96°F Winter Range (December 1990-2012): 32°-60°F (Parkfield, not in Watershed, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Hopper Canyon and Palo Prieto Canyon sub-watersheds are composed of flat highly infiltrative Quaternary material. Cholame Valley sub-watershed is moderate steep moderately infiltrative early to mid-Tertiary headwaters with flat highly infiltrative Quaternary inland. Blue Point and Red Rock Canyon are steep moderately infiltrative early to mid-Tertiary geologic materials (Bell, pers. comm., 2013). Groundwater is found in Holocene age alluvium and the Pleistocene age Paso Robles Formation. Specific yield values in the Paso Robles Sub-basin range from 7 to 11 percent, with an average specific yield of 9 percent. DWR (1958) estimated the average specific yield for the sub-basin at 8 percent. DWR (1999) estimated the average specific yield at 15 percent for the alluvium and 9 percent for the Paso Robles Formation. Alluvium. Holocene age alluvium consists of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. This alluvium provides limited amounts of groundwater and reaches 130 feet thick near the Salinas River, but is generally less than 30 feet thick in the minor stream valleys (DWR 1999). Its high permeability results in a well production capability that often exceeds 1,000 gallons per minute. Groundwater in Holocene alluvium is mostly unconfined. The Pleistocene age Paso Robles Formation, which is the most important source of groundwater in the sub-basin, is unconsolidated, poorly sorted, and consists of sand, silt, gravel, and clay. This formation reaches a thickness of 2,000 feet and groundwater within it is generally confined (Chipping 1987). The Rinconada fault zone forms a leaky barrier that restricts flow from the Atascadero portion of the sub-basin to the main part of the Paso Robles Sub-basin (Fugro West 2001a). The San Andreas fault restricts subsurface flow (Ca. Dept. of Water Resources, 2003).

Cholame Creek Watershed

	Hydrology	
	Stream Gage	Yes; USGS 11147800 (Cholame Creek near Highway 41)(USGS, viewed August 2013) *Last data recorded in 1973*
	Hydrology Models	Yes; CCRWQCB. 2011. Synthetic flow record to determine Pathogen TMDL; SLO County Flood Control and Water Conservation District, 2008, Paso Robles Groundwater Sub-basin Water Banking Feasibility Study. *Limited Information for Cholame Valley Basin, Study area is Paso Sub-basin as a whole*
	Peak Flow	750 cfs (USGS, 1959-73) (USGS, viewed August 2013).
	Base Flow	5.79 cfs (USGS, 1959-1972) (USGS, viewed August 2013).
	Flood Reports	No source identified
	Flood Control Structures	Bridges: 2 over Cholame Creek on Cholame Valley Road and N. Bitterwater Road (PWD Bridges GIS Layer)
	Areas of Flood Risk	No data available
	Biological Setting	
	Vegetation Cover	Primarily non-native annual grassland with cropland, blue oak-foothill pine consisting mainly of blue oak, coastal scrub consisting mainly of California sagebrush, montane hardwood consisting mainly of oak (SLO County vegetation shapefile, 1990). *Data limited by age of shapefile* Wetlands, perennial grasslands, and riparian woodland are also present in this watershed (Althouse and Meade, 2013). There is a great diversity of plant communities including Central Coast Scrub, Serpentine Scrub, Coast Live Oak Woodland, and Central Coast Cottonwood-Sycamore Riparian Forest in addition to vast areas of non-native grassland. (U.S. Department of Transportation, 2006) *Data limited to observations, not complete inventory*
	Invasive Species	Invasive species known to occur in this watershed include: Tree of Heaven (*Ailanthus altissima*), Tamarisk (*Tamarix* spp.), Russian knapweed (*Acroptilon repens*), Russian thistle (*Salsola tragus*) (Althouse and Mead, 2013). *Data limited to observations, not complete inventory*
	Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5’ quadrangle names. Only the portion overlapping the watershed boundary was considered.

Cholame Creek Watershed

Data limited to observations, not complete inventory

Special Status Species	Status	CHOLAME	CHOLAME HILLS	CHOLAME VALLEY	CURRY MOUNTAIN	GARZA PEAK	ORCHARD PEAK	PARKFIELD	SMITH MOUNTAIN	STOCKDALE MTN	TENT HILLS	THE DARK HOLE
Animals												
American badger	SSC	x										x
bank swallow	ST	x										
burrowing owl	SSC (Burrow sites, some wintering sites)	x					x					
California red-legged frog	FT						x				x	
California tiger salamander	FT; ST		x	x			x					
coast horned lizard	SSC	x		x			x					
giant kangaroo rat	FE; SE	x										
grasshopper sparrow	SSC (Nesting)	x										
mountain plover	SSC (Wintering)	x		x								
Nelson's antelope squirrel	ST										x	
pallid bat	SSC	x	x		x		x	x		x		
prairie falcon	SA (Nesting)	x	x	x	x	x	x	x	x	x	x	x
San Joaquin kit fox	FE; ST	x		x								
San Joaquin whipsnake	SSC	x										
silvery legless lizard	SSC	x										
Tulare grasshopper mouse	SSC	x					x					
western pond turtle	SSC	x						x				
western spadefoot	SSC		x	x			x					
Plants												
delicate bluecup	CRPR 1B.3									x		
Eastwood's buckwheat	CRPR 1B.3				x			x				
Hall's tarplant	CRPR 1B.1	x		x							x	x
Hernandez spineflower	CRPR 1B.2		x									
Indian Valley bush-mallow	CRPR 1B.2									x		
Lemmon's jewel-flower	CRPR 1B.2	x					x				x	

Cholame Creek Watershed

Species	Status	CHOLAME	CHOLAME HILLS	CHOLAME VALLEY	CURRY MOUNTAIN	GARZA PEAK	ORCHARD PEAK	PARKFIELD	SMITH MOUNTAIN	STOCKDALE MTN	TENT HILLS	THE DARK HOLE
Mason's neststraw	CRPR 1B.1	x		x								
Munz's tidy-tips	CRPR 1B.2	x										
oval-leaved snapdragon	CRPR 4.2	x		x			x				x	
pale-yellow layia	CRPR 1B.1			x			x				x	
Panoche pepper-grass	CRPR 1B.2						x					
round-leaved filaree	CRPR 1B.1	x										
shining navarretia	CRPR 1B.2	x										
showy golden madia	CRPR 1B.1	x		x			x				x	x
straight-awned spineflower	CRPR 1B.3	x										
Temblor buckwheat	CRPR 1B.2						x	x			x	

Steelhead Streams	None (CNDDB Database. Viewed 2013)
Stream Habitat Inventory	No source identified
Fish Passage Barriers	None (PAD Database viewed 2013)
Designated Critical Habitat	Yes; California Red-legged Frog, California Tiger Salamander Area (USFWS Critical Habitat Portal, viewed 2013)
Habitat Conservation Plans	Yes; North San Luis Obispo County Habitat Conservation Program, multiple species *HCP for North County as a whole, not watershed specific*
Other Environmental Resources	Paso Robles Groundwater Basin (SLO County Flood Control and Water Conservation District, 2007)
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo, Shandon
% Urbanized	1.4% (Commercial Service, Rural Residential, Rural Suburban, Rural Single Family) (SLO County LUC)
% Agricultural	98.4%, (SLO County LUC)
% Other	0%
Planning Areas	Shandon – Carrizo Planning Area
Potential growth areas	Shandon

Cholame Creek Watershed

	Facilities Present	None identified
	Commercial Uses	Agriculture
	Demographics	
	Population	74 in watershed (US Census Block, 2010)
	Race and Ethnicity	Watershed: 63.5% Caucasian; 35.1% Latino; 1.4% Other (US Census Block, 2010) Shandon: 53.5% Latino; 41.1% Caucasian; 2.6% Black or African American; 0.9% American Indian and Alaska Native; 0.5% Asian; 0.2% Pacific Islander; 1.2% Mixed Race (US Census, 2010)
	Income	MHI $66,966 in watershed (tract spans 6 watershed) (U.S. Census Tract, 2010). MHI $65,260 in Shandon (US Census, 2010)
	Disadvantaged Communities	No; 4% of individuals below poverty level in watershed (U.S. Census Tract, 2010) (tract spans 6 watershed). 19.1% of individuals are below poverty level in Shandon (US Census, 2010)
	Water Supply	
	Water Management Entities	County Service Area (CSA) No. l6 (Shandon); outlying properties served by individual wells - Depths of wells ranged from 100 to 665 feet (Carollo, 2012)
	Groundwater	Yes; Paso Robles and Cholame Valley Basins Cholame Basin: Subsurface groundwater inflow and outflow has been reported to occur through the Paso Robles Formation (Bader 1969)(Ca. Dept. of Water Resources, 2003).
	Surface Water	No public reservoirs.
	Imported Water	CSA 16 holds an allocation for 100 acre-feet per year (AFY) of the State Water Project supply. In order to use this allocation, a turn-out on the State Water Project, which runs north-south along the eastern edge of San Juan Road, would have to be built. (SLO County, 2012)
	Recycled/ Desalinated Water	None
	Key groundwater percolation area(s)	No data on key areas identified Natural recharge in the basin is derived from infiltration of precipitation, seepage from streams, and return flow from irrigation and other uses (Ca. Dept. of Water Resources, 2003)
	Water budget	Yes; Todd Engineers, 2013, for Paso Robles Groundwater Sub-basin Update

Cholame Creek Watershed

	Water Uses	
	Beneficial Uses	*Cholame Valley* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater habitat (WARM), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM) (CCRWQCB, 2011)
	Other Unique Characteristics	
	Cholame Creek	Cholame Valley and the large alkali salt flat in the area offer unique habitat to specialized plant species. A unique natural community known as valley sink scrub exists in the watershed. Characterized by low, open succulent shrublands dominated by alkali tolerant plant species such as frankenia (*Frankenia salina*), spear oracle (*Atriplex patula*), wedge scale (*Atriplex truncata*), alkali weed (*Cressa truxillensis*) and saltgrass (*Districhlis spicata*). Valley scrub soil are typically dark, sticky clay soils that often have a brilliant white salty crust over them. Grazing has altered much of this community where non-native grasses now dominate much of the Cholame Valley floor.
	Palo Prieto Canyon	Located at an important crossroads for San Joaquin kit fox populations of the the Carrizo Plain, the Ciervo-Panoche, and the Salinas River Valley. Properties contain a natural lake (sag pond), Grant Lake, and numerous small vernal and seasonal ponds and pools. Wetlands support rare amphibians, crustaceans and flora. Sag ponds historically habitat for California tiger salamander, Western spadefoot toad and California toad.
	Shandon Vicinity Creek Area and Habitat Area	The riparian forest and a portion of the adjacent upland areas associated with the Estrella River and San Juan Creek in the vicinity of Shandon are important wildlife habitat for the San Joaquin kit fox, Western burrowing owl and other wildlife species, and serve as important corridors for wildlife movement. Another important wildlife movement corridor is located near the base of the hillside near the eastern edge of Shandon.
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general to County, not Watershed specific*

Cholame Creek Watershed

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3317.000903	0	Undefined	0	Undefined	317.00	Cholame	Blue Point
3317.000904	0	Undefined	0	Undefined	317.00	Cholame	Cholame Valley
3317.000503	0	Undefined	0	Undefined	317.00	Cholame	Hopper Canyon (ptn)
3317.000906	0	Undefined	0	Undefined	317.00	Cholame	Palo Prieto Canyon
3317.000902	0	Undefined	0	Undefined	317.00	Cholame	Red Rock Canyon
3317.000907	0	Undefined	0	Undefined	317.00	Cholame	West side Cholame Valley
3317.000905	0	Undefined	0	Undefined	317.00	Cholame	E. of Palo Preito Canyon

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

- Historic junction where different Native American tribes have met to trade goods from their respective areas. Coastal tribes met with valley tribes and tribes of the Sierra Nevada to exchange food, materials for tools and ceremonial pieces.
- The Migueleno people, a subset of the Salinan cultural group, were the native residents project area. Because of the early impact on them by Spanish colonization beginning in 1769, ethnographic data is limited.
- The Salinan people are believed to have occupied the region for at least several thousand years. Population figures suggest that their numbers probably never surpassed 3,000. The eastern boundary, which followed summit of the Diablo Range, appears to have been somewhat fluid and shared with bands of the Southern Valley Yokut.
- 1844 – Rancho Cholame established. A 26,622 acre Mexican land grant given by Governor Manuel Micheltorena to Mauricio Gonzales from the holdings of Mission San Miguel Arcangel.
- 1867 – William Welles Hollister (1818-1886) purchased Rancho Cholame, sells to Edgar Jack in 1869 who uses it mainly as a sheep range.
- Cholame has long been an area of activity and a place to congregate for residents of the area. A post office was first established there on May 14, 1873.

Cholame Creek Watershed

- The Jack Ranch Café was built in 1923, serving locals and travelers alike. A clump of ailanthus (tree of heaven) trees marks the spot of the former Cholame-Orange schoolhouse.
- In November 1966, Howard Jack sold the 21,450 hectares (53,000 acres) Cholame Ranch to the Hearst Corp., which still owns and operates the Jack Ranch as it is commonly known.

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	**Pollution Sources** NP (non-point) MP (Major Point)	Environmental Flows
Blue Point	Undetermined	Not assessed	Undetermined	Not assessed
Cholame Valley	Perennial	Yes; Boron, Chloride, Electrical Conductivity, Escherichia coli (E. coli), Fecal Coliform, Low Dissolved Oxygen, Sodium	Grazing Related sources, Natural Sources, Source Unknown	Not assessed
Hopper Canyon (ptn)	Undetermined	Not assessed	Undetermined	Not assessed
Palo Prieto Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Red Rock Canyon	Undetermined	Not assessed	Undetermined	Not assessed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints (Carollo, 2012)	Drinking Water Standard Exceedance	Water Quality Objective Exceedance (CCRWQCB, 2011)
Paso Robles	97,700 AF (SLO County, 2012)	Physical limitations, water rights and water quality	Yes; see description below.	None
Cholame Valley*	No data	Physical	None	None

	available	limitations and water quality		

**Last specific groundwater study in 1969.*

Groundwater Qualty Description: The predominant cations in the watershed are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissolved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study (Fugro West 2001b), 23 of 74 samples collected exceeded one or more of the drinking water standards. The Maximum Contaminant Level (MCL) for TDS was exceeded in 14 samples (Fugro West 2001b). The MCL for nitrate was exceeded in 4 samples. The Bradley portion of the sub-basin had the highest percentage of samples with constituents higher than the drinking water standards (Fugro West, 2001b) Trends show an increasing concentration of nitrate between the Salinas and Huer Huero rivers south of San Miguel (Fugro West, 2001b; Carollo, 2012)

Generally high concentrations of TDS, chlorides, sulfates, and boron were identified for the Cholame Valley Basin (Chipping, et al., 1993).

Primary Issues

Issue	***Potential Causes***	***Referenced from***
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural "ranchette" users	Carollo, 2012
Limited groundwater quality information – Cholame Valley basin		Carollo, 2012
No yield information and limited hydrogeologic information for Cholame Basin		Carollo, 2012
Groundwater Quality	high concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012
Cholame Creek 303(d) listed for Boron, Chloride, Electrical Conductivity, Escherichia coli (E. coli), Fecal Coliform, Low Dissolved Oxygen, Sodium	Grazing Related sources, Natural Sources	Carollo, 2012

Paso Robles Groundwater Basin: According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From

1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Significant Studies in Progress:

None identified

Estrella River Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estrella 17	Salinas/ Estrella WPA 14	177,631 acres total with 138,784 acres within San Luis Obispo County	Salinas River – to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles	County of San Luis Obispo, Shandon (ptn) Whitley Gardens, Los Padres National Forest

Description: The Estrella River watershed is located in the Northern part of the County east of the Salinas River. A portion of the watershed is located in Monterey County with a majority of the acreage located within SLO County. The Estrella and some of its tributaries carry perennial underground flows that form a tributary of the Salinas River. The Estrella River forms from the confluence of San Juan Creek and Cholame Creek near Shandon, in the foothills of the Coast Ranges. The confluence of the Salinas and Estrella Rivers occurs in Northern San Luis Obispo County, within the town of San Miguel. The highest elevation in the watershed is approximately 2,854 feet, and the lowest elevation is around 607 feet. Vineyards slightly predominate over oak woodlands and grassland communities. Tree species such as blue oak, and valley oak dominate the oak woodland, while western sycamore, Fremont's cottonwood, and willows are found in the riparian woodlands along the Estrella River. Agriculture is the dominant use. The Estrella River Valley is generally used most intensively for agriculture because of better soils and water availability. Irrigated production has increased during the last 10 years, particularly in vineyards and alfalfa. Dry farming and grazing operations encompass the rest of the agricultural uses.

Existing Watershed Plans:

No existing plans to date

Estrella River Watershed

Characteristics

Physical Setting	
Rainfall	Mean Annual: 14-24 in. (NRCS shapefile, 2010)
Air Temperature	Summer Range (August 1990-2012): 54°-94°F Winter Range (December 1990-2012): 34°-60°F (Paso Robles Airport, NOAA National Climatic Data Center, viewed 2013)
Geology Description	Lower San Jacinto Creek, Lower Ranchito Canyon, Estrella, Upper and Lower Hog Canyon, Mile 9 to 11 Estrella River, Upper and Lower Keys Canyon, Freeman Canyon, Willow Springs Canyon, Sheep Camp Canyon, Indian Creek, Pine Canyon, Taylor Canyon, Upper and Lower Shimmin Canyon, Bud Canyon, Hopper Canyon, Wood Canyon, Shed Canyon and Upton Canyon are flat highly infiltrative Quaternary. Upper Ranchito Canyon which is moderate steep moderately infiltrative early to mid-Tertiary headwaters with flat highly infiltrative Quaternary inland. Quail Water Creek is steep moderately infiltrative early to mid-Tertiary headwaters with flat pre Quaternary moderately infiltrative valley (Bell, pers. comm., 2013). Groundwater is found in Holocene age alluvium and the Pleistocene age Paso Robles Formation. Specific yield values in the Paso Robles Sub-Basin range from 7 to 11 percent, with an average specific yield of 9 percent (Fugro West 2001c). DWR (1958) estimated the average specific yield for the sub-basin at 8 percent. DWR (1999) estimated the average specific yield at 15 percent for the alluvium and 9 percent for the Paso Robles Formation. Alluvium. Holocene age alluvium consists of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. This alluvium provides limited amounts of groundwater and reaches 130 feet thick near the Salinas River, but is generally less than 30 feet thick in the minor stream valleys (DWR 1999). Its high permeability results in a well production capability that often exceeds 1,000 gpm (Fugro West 2001a). Groundwater in Holocene alluvium is mostly unconfined. Paso Robles Formation. Pleistocene age Paso Robles Formation, which is the most important source of groundwater in the sub-basin, is unconsolidated, poorly sorted, and consists of sand, silt, gravel, and clay (DWR 1979). This formation reaches a thickness of 2,000 feet and groundwater within it is generally confined (DWR 1958).

Estrella River Watershed

	Hydrology	
	Stream Gage	Yes; USGS 11148500 (Estrella River at Airport Road)(USGS, viewed August 2013)
	Hydrology Models	Yes; SLO County Flood Control and Water Conservation District, 2008, Paso Robles Groundwater Sub-basin Water Banking Feasibility Study.
	Peak Flow	Average annual peak flow (highest peak flow for each year) 3,746 cfs) (USGS, viewed August 2013)
	Base Flow	1.66 cfs (USGS, viewed August 2013)
	Flood Reports	No source identified
	Flood Control Structures	Bridges: 5 over Ranchita Creek Road on Estrella Road and Ranchita Canyon Road (4); 3 over Estrella River on Estrella Road, River Grove Drive and West Center Road; 1 over Hog Canyon Creek over Hog Canyon Road; 1 over McMillian Canyon Creek over West Center Road (PWD Bridges GIS Layer)
	Areas of Known Flood Risk	Shandon: flooding of properties on the side of and adjacent to Highway 41 near the community park in the center of town.
	Biological Setting	
	Vegetation Cover	Primarily non-native annual grassland with cropland, blue oak-foothill pine consisting mainly of blue oak, chamise-redshank chaparral consisting mainly of chamise, coastal scrub consisting mainly of sagebrush and buckwheat, orchards, vineyards and nurseries. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile* Wetlands, dry washes, and riparian woodlands in the Estrella watershed provide important wildlife habitat and ecosystem functions despite their small areal extent in the watershed (Althouse and Mead, 2013). *Data limited to observations, not complete inventory*
	Invasive Species	European starling, English sparrow, wild pig are in most watersheds in North County. Perennial pepperweed (*Lepidium latifolium*) known from San Miguel near Estrella River confluence, first reported County occurrence was in this region. The following species were identified in Cross Canyon subwatershed in 2009: Russian olive (*Eleagnus angustifolia*), Cardoon (*Cynara cardunculus*) The following species were identified in Estrella River (mile 9-11) subwatershed in 2008: Tree of heaven (*Ailanthus altissima*), Tamarisk (*Tamarix* sp.), Rush skeleton weed (*Chondrilla juncea*), Medusahead (*Elymus [=Taeniatherum] caput-medusae* (Althouse and Mead, 2013). *Data limited to observations, not complete inventory*

Estrella River Watershed

Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory.*

Special Status Species	**Status**	**CAMATTA CANYON**	**CAMATTA RANCH**	**CHOLAME**	**CHOLAME HILLS**	**CHOLAME VALLEY**	**ESTRELLA**	**PARKFIELD**	**PASO ROBLES**	**RANCHITO CANYON**	**SHANDON**	**SHEDD CANYON**	**STOCKDALE MTN**	**WILSON CORNER**
Animals														
American badger	SSC	x	x								x	x		x
bank swallow	ST			x							x			
Nelson's antelope squirrel	ST										x			
pallid bat	SSC				x			x		x			x	
prairie falcon	SA	x	x	x	x	x	x			x	x	x	x	x
San Joaquin kit fox	FE; ST		x				x				x	x		
San Joaquin pocket mouse	SA		x						x		x			x
silvery legless lizard	SSC													x
Swainson's hawk	ST				x		x				x	x		
Tulare grasshopper mouse	SSC			x							x			
western pond turtle	SSC										x			
western spadefoot	SSC						x							
Plants														
delicate bluecup	CRPR 1B.3												x	
Hardham's evening-primrose	CRPR 1B.2		x											
Jared's pepper-grass	CRPR 1B.2						x		x					
Kellogg's horkelia	CRPR 1B.1								x					
La Panza mariposa-lily	CRPR 1B.3		x											x
Lemmon's jewel-flower	CRPR 1B.2								x					x
oval-leaved snapdragon	CRPR 4.2						x		x					
round-leaved filaree	CRPR 1B.1		x				x		x					

Estrella River Watershed

Special Status Species	Status	CAMATTA CANYON	CAMATTA RANCH	CHOLAME	CHOLAME HILLS	CHOLAME VALLEY	ESTRELLA	PARKFIELD	PASO ROBLES	RANCHITO CANYON	SHANDON	SHEDD CANYON	STOCKDALE MTN	WILSON CORNER
shining navarretia	CRPR 1B.2								x					
Temblor buckwheat	CRPR 1B.2										x			
yellow-flowered eriastrum	CRPR 1B.2													x

Steelhead Streams	None (National Marine Fisheries Service, 2012).
Stream Habitat Inventory	No source identified
Fish Passage Barriers	None identified (PAD Database viewed 2013)
Designated Critical Habitat	Yes; Vernal Pool Fairy Shrimp (USFWS Critical Habitat Portal, viewed 2013) (None listed in NMFS CFR-50)
Habitat Conservation Plans	Yes; Shandon Community Plan Habitat Conservation Plan, North San Luis Obispo County Habitat Conservation Program
Other Environmental Resources	Estrella River, Paso Robles Groundwater Basin, San Andreas Fault Zone. (SLO County Flood Control and Water Conservation District, 2007) Tree species such as blue oak (*Quercus douglasii*) and valley oak (*Quercus lobata*) dominate the oak woodland, while western sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*) and willows (*Salix spp.*) are found in the riparian woodlands along the Estrella River. Riparian woodlands have limited extent in interior San Luis Obispo County and provide important habitat and movement corridors for wildlife. Sycamore woodlands considered to be a rare vegetation type. Wetlands provide filtration, sediment removal, and nutrient removal. Rare reptiles such as silvery legless lizard and coast horned lizards can utilize dry wash habitat in the dry season. Dry washes are also important movement corridors for wildlife (Althouse and Meade, 2013).
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo, Shandon, Whitley Gardens
% Urbanized	1.4% (City, Commercial Retail, Public Facility, Residential Suburban, Residential Single Family) (SLO County LUC)
% Agricultural	93.1% (SLO County LUC)

Estrella River Watershed

% Other	2.2% Rural Lands; 2.1% Rural Residential; 1.2% Open Space (SLO County LUC)
Planning Areas	El-Pomar/Estrella, Shandon-Carrizo Planning Areas
Potential growth areas	Whitley Gardens, Shandon
Facilities Present	Green River Mutual Water Company (Whitley Gardens)
Commercial Uses	Agriculture
Demographics	
Population	3,527 in watershed (US Census Block, 2010)
Race and Ethnicity	Watershed: 67.8% Caucasian; 27.2% Latino; 2.4% Mixed Race; Less than 1% each African American, American Indian, Asian, Pacific Islander (US Census Block, 2010) Shandon: 53.5% Latino; 41.1% Caucasian; 2.6% Black or African American; 0.9% American Indian and Alaska Native; 0.5% Asian; 0.2% Pacific Islander; 1.2% Mixed Race (US Census, 2010) Creston: 89.4% Caucasian; 6.4% Hispanic or Latino; 2.1% American Indian and Alaska Native; 1.1% Mixed Race; 1.1% Asian (US Census, 2010)
Income	MHI $66,966 in watershed (US Census, 2011) (includes Cholame Creek, Lower San Juan Creek and Huer Huero Creek watersheds) MHI $65,260 in Shandon (US Census, 2010) MHI $85,357 in Creston (US Census, 2010)
Disadvantaged Communities	No; 4% of individuals are below poverty level in the watershed (US Census Tract, 2010) (includes Cholame Creek, Lower San Juan Creek and Huer Huero Creek watersheds) 19.1% of individuals are below poverty level in Shandon (US Census, 2010) 0% of individuals are below poverty level in Creston (US Census, 2010)
Water Supply	
Water Management Entities	Green River Mutual Water Company (Whitley Gardens); County Service Area (CSA) No. l6 (Shandon); other properties served by individual wells
Groundwater	Yes; Paso Robles Basin
Surface Water	No public reservoirs.
Imported Water	CSA 16 holds an allocation for 100 acre-feet per year (AFY) of the State Water Project supply. In order to use this allocation, a turn-out on the State Water Project, which runs north-south along the eastern edge of San Juan Road, would have to be built. (SLO County, 2012)

Estrella River Watershed

	Recycled / Desalinated Water	None
	Key groundwater percolation area(s)	No complete study identified - Creston Recharge Area Identified as possible key percolation area Natural recharge in the basin is derived from infiltration of precipitation, seepage from streams, and return flow from irrigation and other uses (SLOCFCWCD, 2008)
	Water budget	Yes; Todd Engineers, 2013 for Paso Robles Groundwater Basin Update
	Water Uses	
	Beneficial Uses	*Estrella* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater habitat (WARM), Spawning, Reproduction, and/or Early Development (SPWN), and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	Shandon Vicinity Creek Area and Habitat Area	The riparian forest and a portion of the adjacent upland areas associated with the Estrella River and San Juan Creek in the vicinity of Shandon are important wildlife habitat, and serve as important corridors for wildlife movement. San Joaquin kit fox and Western burrowing owl occur in open grasslands. Another important wildlife movement corridor is located near the base of the hillside near the eastern edge of Shandon.
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general to county, not Watershed specific*

Watershed Codes

Calwater/DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3317.000503	0	Undefined	0	Undefined	317.00	Shandon	Hopper Canyon (ptn – also in Cholame)
3317.000504	0	Undefined	0	Undefined	317.00	Shandon	Quail Water Creek
3317.000505	0	Undefined	0	Undefined	317.00	Shandon	Upton Canyon
3317.000506	0	Undefined	0	Undefined	317.00	Shandon	Shed Canyon
3317.000507	0	Undefined	0	Undefined	317.00	Shandon	Wood Canyon

3317.000508	0	Undefined	0	Undefined	317.00	Shandon	Bud Canyon
3317.000601	0	Undefined	0	Undefined	317.00	Whitley Gardens	Taylor Canyon
3317.000602	0	Undefined	0	Undefined	317.00	Whitley Gardens	Lower Shimmin Canyon
3317.000603	0	Undefined	0	Undefined	317.00	Whitley Gardens	Pine Canyon
3317.000604	0	Undefined	0	Undefined	317.00	Whitley Gardens	Indian Creek
3317.000605	0	Undefined	0	Undefined	317.00	Whitley Gardens	Sheep Camp Canyon
3317.000606	0	Undefined	0	Undefined	317.00	Whitley Gardens	Freeman Canyon
3317.000607	0	Undefined	0	Undefined	317.00	Whitley Gardens	Willow Springs Canyon
3317.000608	0	Undefined	0	Undefined	317.00	Whitley Gardens	Upper Shimmin Canyon
3317.000701	0	Undefined	0	Undefined	317.00	Lower Estrella River	Lower San Jacinto Creek
3317.000703	0	Undefined	0	Undefined	317.00	Lower Estrella River	Upper Ranchito Canyon
3317.000704	0	Undefined	0	Undefined	317.00	Lower Estrella River	Lower Ranchito Canyon
3317.000705	0	Undefined	0	Undefined	317.00	Lower Estrella River	Upper Hog Canyon
3317.000706	0	Undefined	0	Undefined	317.00	Lower Estrella River	Estrella
3317.000707	0	Undefined	0	Undefined	317.00	Lower Estrella River	Lower Hog Canyon
3317.000708	0	Undefined	0	Undefined	317.00	Lower Estrella River	Mile 9 to 11 Estrella River
3317.000709	0	Undefined	0	Undefined	317.00	Lower Estrella River	Lower Keyes Canyon
3317.000711	0	Undefined	0	Undefined	317.00	Lower Estrella River	Upper Keyes Canyon

Major Changes in the Watershed

1857 – Paso de Robles Land Grant sold by Petronilo Rios to James H. Blackburn, Daniel Drew Blackburn, and Lazarus Godehaux for $8,000.

1920s – State Route 46 built and improved along Estrella River. Was fully paved by 1930, and is a major crossing for the Coast Ranges, connecting the Central Coast near Cambria and US 101 with SR 99 in the San Joaquin Valley

Estrella River Watershed

1942 – Construction of Estrella Army Airfield which was to be used as a Marine Corps Bomber Base begins. San Luis Obispo County gained control of the facilities n 1947, and began offering commercial air service in 1952. In 1973 the county sold the airport to the city of Paso Robles for $1.00.

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Bud Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Estrella (Watershed)	Ephemeral	Not assessed	Undetermined	Not assessed
Freeman Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Hopper Canyon (ptn)	Undetermined	Not assessed	Undermined	Not assessed
Indian Creek	Undetermined	Not assessed	Undetermined	Not assessed
Lower Hog Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower Keys Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower Ranchito Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower San Jacinto Creek	Undetermined	Not assessed	Undetermined	Not assessed
Lower Shimmin Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Estrella River (Mile 9 to 11)	Undetermined	Boron, Chloride, Fecal Coliform, Sodium, pH	Agriculture, Grazing-Related sources, Natural Sources,	Not assessed
Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Pine Canyon	Perennial	Not assessed	Undetermined	Not assessed
Quail Water Creek	Undetermined	Not assessed	Undetermined	Not assessed
Shed Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Sheep Camp Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Taylor Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Hog Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Keys Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Ranchito Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Shimmin Canyon	Undetermined	Not assessed	Undetermined	

Estrella River Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County, 2012)	Physical limitations, water rights and water quality (Carollo, 2012)	Yes; see description below.	None (CCRWQCB, 2011)

Groundwater Quality Description: The predominant cations in the watershed are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissolved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study (Fugro West 2001b), 23 of 74 samples collected exceeded one or more of the drinking water standards. The Maximum Contaminant Level (MCL) for TDS was exceeded in 14 samples (Fugro West 2001b). The MCL for nitrate was exceeded in 4 samples. The Bradley portion of the sub-basin had the highest percentage of samples with constituents higher than the drinking water standards (Fugro West, 2001b) Trends show an increasing concentration of nitrate between the Salinas and Huer Huero rivers south of San Miguel (Carollo, 2012)

Generally high concentrations of TDS, chlorides, sulfates, and boron were identified for the Cholame Valley Basin (Chipping, et al., 1993). Increasing chlorides in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012)

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural “ranchette”) users	Carollo, 2012
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012
Estrella River 303(d) listed for boron, chloride, fecal coliform, sodium and pH	Agriculture, grazing-related, natural sources	Carollo, 2012

Estrella River Watershed

According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Significant Studies in Progress:

None identified

Huer Huero Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Salinas 9	Salinas/ Estrella WPA 14	103,496 acres	Salinas River – to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles	County of San Luis Obispo, Creston (ptn),City of Paso Robles (ptn.), Los Padres National Forest

Description:

The Huer Huero watershed is located in the eastern portion of San Luis Obispo's North County region. The Huer Huero creek is an ephemeral underground stream which flows to directly to the Salinas River. The headwaters occur in the Coast Ranges, south of Creston and reach elevations of approximately 3312 feet. The confluence of the Huer Huero with the Salinas River occurs in Paso Robles. The dominant land use in the watershed is agriculture, with vineyards comprising a large percentage. The watershed is divided into two main drainages, the Upper Huer Huero and the Lower Huer Huero. Highway 41 East bisects the watershed. A portion of the Los Padres National Forest is located in the southeast portion of the watershed and contains the highest elevations in the watershed.

Watershed Plans:

No existing plans to date

Huer Huero Creek Watershed

	Physical Setting	
	Rainfall	Average Annual: 13-18 in. (north portion), 18-24 in. (south portion) (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 54°-94°F Winter Range (December 1990-2012): 34°-60°F (Paso Robles Airport, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Huerto Creek, Union School, Dry Canyon, Jackson and Reinhert Ranch and East Branch Huer Huero Creek sub-watersheds are composed of flat highly infiltrative Quaternary material. Grassy sub-watershed is moderate steep moderately infiltrative early to mid-Tertiary headwaters and flat highly infiltrative Quaternary inland. Wilson Canyon and the Middle and West Branches of Huer Huero Creek are moderately infiltrative early to mid-Tertiary headwaters with flat Quaternary highly infiltrative valleys (Bell, pers. comm., 2013). Groundwater is found in Holocene age alluvium and the Pleistocene age Paso Robles Formation. Specific yield values in the Paso Robles Sub-basin range from 7 to 11 percent, with an average specific yield of 9 percent (Fugro West 2001c). DWR (1958) estimated the average specific yield for the sub-basin at 8 percent. DWR (1999) estimated the average specific yield at 15 percent for the alluvium and 9 percent for the Paso Robles Formation. Alluvium. Holocene age alluvium consists of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. This alluvium provides limited amounts of groundwater and reaches 130 feet thick near the Salinas River, but is generally less than 30 feet thick in the minor stream valleys (DWR 1999). Its high permeability results in a well production capability that often exceeds 1,000 gpm (Fugro West 2001a). Groundwater in Holocene alluvium is mostly unconfined. The Pleistocene age Paso Robles Formation, which is the most important source of groundwater in the sub-basin, is unconsolidated, poorly sorted, and consists of sand, silt, gravel, and clay (DWR 1979). This formation reaches a thickness of 2,000 feet and groundwater within it is generally confined (DWR 1958).
	Hydrology	
	Stream Gage	Yes; USGS 11147600 (Huer Huero Creek at Geneseo Road)

Huer Huero Creek Watershed

		(USGS, data last recorded in 1972, viewed August 2013)
	Hydrology Models	Yes; SLO County Flood Control and Water Conservation District, 2008, Paso Robles Groundwater Sub-basin Water Banking Feasibility Study.
	Peak Flow	13,800 cfs (USGS, 1959-72, viewed August 2013) *Data last recorded in 1972*
	Base Flow	5.86 cfs (USGS, 1959-72, viewed August 2013) *Data last recorded in 1972*
	Flood Reports	No source identified
	Flood Control Structures	Bridges: 1 over Quail Creek on Creston Road; 8 on Huer Huero Creek on Creston Road, Old Donovan Road (3), Union Road (2), Linne Road, River Road (2); 1 over Dry Creek on Union Road (PWD Bridges GIS Layer)
	Areas of Flood Risk	San Luis Obispo County has identified several areas along Huer Huero Creek that are known flood hazards • All areas along Huer Huero Creek • The area south of the airport from Dry Creek • The area along Linne Road (City of Paso Robles, 2005)
	Biological Setting	
	Vegetation Cover	Primarily non-native annual grassland, cropland, and mixed chaparral including buck brush and chamise-redshank chaparral, (mainly continuous chamise) blue oak-foothill pine woodland, as well as, continuous blue oak woodland, orchards, vineyards, and nurseries. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile* Valley oak savanna is present, and wetlands, vernal pools, and riparian habitats also occur in this watershed. Huerhuero Creek is a dry wash in most locations. Flows are ephemeral. The sandy bed typically supports scattered shrubs and trees, and provides appropriate habitat for several native reptiles during the dry season (Althouse and Meade, 2013). *Data limited to observations, not complete inventory*
	Invasive Species	Silverleaf horsenettle (*Solanum elaeagnifolium*) is known from a small patch on the side of Highway 58 near Huerhuero Road. Tree of heaven (*Ailanthus altissima*) is widespread. Medusahead (*Elymus [=Taeniatherum] caput-medusae*) is known from rangelands in Paso Robles. Other invasive species may be present (Althouse and Meade, 2013). *Data limited to observations, not complete inventory*
	Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013)

Huer Huero Creek Watershed

Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered.

Data limited to observations, not complete inventory

Special Status Species	Status	CAMATTA RANCH	CRESTON	ESTRELLA	PASO ROBLES	SANTA MARGARITA	SHANDON	SHEDD CANYON	TEMPLETON	WILSON CORNER
Animals										
American badger	SSC	x						x		x
golden eagle	FP				x					
prairie falcon	SA		x	x			x	x		
San Joaquin kit fox	FE; ST				x			x	x	
silvery legless lizard	SSC									x
Swainson's hawk	ST		x	x			x	x		
vernal pool fairy shrimp	FT		x	x	x					
western pond turtle	SSC							x		x
western spadefoot	SSC		x			x		x		x
Plants										
chaparral ragwort	CRPR 2B.2							x		x
dwarf calycadenia	CRPR 1B.1	x	x							
Hardham's evening-primrose	CRPR 1B.2					x				x
hooked popcornflower	CRPR 1B.2									x
La Panza mariposa-lily	CRPR 1B.3					x		x		x
pale-yellow layia	CRPR 1B.1									x
San Luis Obispo owl's-clover	CRPR 1B.2				x					
shining navarretia	CRPR 1B.2		x		x	x		x		

Huer Huero Creek Watershed

Special Status Species	Status	CAMATTA RANCH	CRESTON	ESTRELLA	PASO ROBLES	SANTA MARGARITA	SHANDON	SHEDD CANYON	TEMPLETON	WILSON CORNER
spreading navarretia	FT		x					x		
straight-awned spineflower	CRPR 1B.3					x				
yellow-flowered eriastrum	CRPR 1B.2					x				x

Steelhead Streams	1982 DFG memo listed Huerhuero Creek as having a historical steelhead run (DFG 1982a, CEMAR). Staff from DFG consider Huerhuero Creek as lacking suitable *O. mykiss* habitat due to the seasonal nature of flows (Hill pers. comm., 2013).
Stream Habitat Inventory	None
Fish Passage Barriers	None Identified
Designated Critical Habitat	Yes; Vernal Pool Fairy Shrimp (USFWS Critical Habitat Mapper viewed 2013)
Habitat Conservation Plans	Yes; North San Luis Obispo County Habitat Conservation Programs – multiple species *HCP for North County not Watershed specific*
Other Environmental Resources	Paso Robles Groundwater Basin
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo, City of Paso Robles (ptn), Community of Creston
% Urbanized	4.5% Residential Rural; 3.5% City of Paso Robles; Less than 1% each Commercial Retail, Public Facility, Residential Suburban, Residential Single Family
% Agricultural	67.3%; row crops, vineyards, fields and rangeland
% Other	17.8% Rural Lands; 5.7% Open Space
Planning Areas	El-Pomar/Estrella & Shandon-Carrizo Planning Areas
Potential growth areas	City of Paso Robles, Creston (SLO County, 2013)
Facilities Present	California Youth Authority, Paso Robles Airport & associated Wastewater treatment plant

Huer Huero Creek Watershed

	Commercial Uses	Creston Sand and Gravel Pit owned by Union Asphalt; Agriculture, retail, service providers
	Demographics	
	Population	5,894 in watershed (US Census Blocks, 2010)
	Race and Ethnicity	Watershed: 80.9% Caucasian; 14.2% Latino; 2.4% Mixed Race; 1.1% Asian; Less than 1% each African American, American Indian and Pacific Islander (US Census Blocks, 2010) Paso Robles: 77.7% Caucasian; 34.5% Hispanic; 3.9% Mixed Race; 2.1% Black or African American; 2% Asian; 0.2% Pacific Islander (US Census, 2010) Creston: 89.4% Caucasian; 6.4% Hispanic or Latino; 2.1% American Indian and Alaska Native; 1.1% Mixed Race; 1.1% Asian (US Census, 2010)
	Income	MHI $59,006 in watershed (US Census Tracts, 2010) (interpolated from 4 tracts which include multiple watersheds) MHI $ 85,357 in Creston (US Census, 2010) MHI $ 72, 991 in Paso Robles (US Census, 2010)
	Disadvantaged Communities	No (DWR); 10.2% of individuals are below poverty level in Paso Robles (US Census, 2007-2011); 0% of individuals are below poverty level in Creston (American Community Survey, 2007-2011)
	Water Supply	
	Water Management Entities	City of Paso Robles, outlying areas served by Individual wells
	Groundwater	Paso Robles Basin
	Surface Water	No public reservoirs.
	Imported Water	Nacimiento Pipeline
	Recycled/Desalinated Water	None
	Key groundwater percolation area(s)	No full watershed study identified – One area identified as East Branch Huer Huero Creek direct recharge area (Paso Robles Groundwater Sub-basin Water Banking Feasiblity Study, 2008).
	Water budget	Yes; Todd Engineers, 2013 for Paso Robles Groundwater Sub-basin Update
	Water Uses	
	Beneficial Uses	*Huer Huero Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water

Huer Huero Creek Watershed

		Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater habitat (WARM), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	Historical Resources	Creston Cemetery (La Panza Road, Creston-Intersection of CA State Hwys 41 and 229); Creston Community Church (6265 Adams Street, Creston), Rinconada School (located in Chandler Ranch-Fontana & Linne Road, Paso Robles), Chandler House (Webster), Linne School (Creston & Stagecoach Road, Creston)(PLN_DES_HISTORIC_POINTS GIS Layer)
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for County, not Watershed specific.*

Watershed Codes

Calwater/DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic sub-Area Name	SRWCB Number	CDF Super Planning	CDF Watershed Name
3309.811501	-	Paso Robles	-	Atascadero	309.81	Upper Huerhuero Creek	East Branch Huer Huero Creek
3309.811502	-	Paso Robles	-	Atascadero	309.81	Upper Huerhuero Creek	Middle Branch Huer Huero Creek
3309.811503	8	Paso Robles	1	Atascadero	309.81	Upper Huerhuero Creek	Grassy
3309.811504	-	Paso Robles	-	Atascadero	309.81	Upper Huerhuero Creek	West Branch Huer Huero Creek
3309.811505	-	Paso Robles	-	Atascadero	309.81	Upper Huerhuero Creek	N. of Creston
3309.811506	0	Paso Robles	0	Atascadero	309.81	Upper Huerhuero Creek	Wilson Canyon
3309.811601	8	Paso Robles	1	Atascadero	309.81	Lower Huerhuerto Creek	Jackson and Reinhert Ranch
3309.811602	8	Paso Robles	1	Atascadero	309.81	Lower Huerhuerto	Geneseo

						Creek	
3309.811603	8	Paso Robles	1	Atascadero	309.81	Lower Huerhuerto Creek	Dry Canyon
3309.811604	8	Paso Robles	1	Atascadero	309.81	Lower Huerhuerto Creek	Union School
3309.811605	8	Paso Robles	1	Atascadero	309.81	Lower Huerhuerto Creek	El Pomar
3309.811606	8	Paso Robles	1	Atascadero	309.81	Lower Huerhuerto Creek	Huerto Creek
3309.811607	8	Paso Robles	1	Atascadero	309.81	Lower Huerhuerto Creek	Ryan

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

Excerpts from a California Genealogy & History Archive recall these historic conditions of the Huer Huero. (A Memorial and Biographical History of the Counties of Santa Barbara,San Luis Obispo, and Ventura, California, 1891).

- 1842 – Rancho Huerhuero – a 15,685 acre Mexican land grand given by Governor Juan Alvarado to Jose Mariano Bonilla. The rancho was composed of lands formerly a part of Mission San Miguel Arcangel.
- 1844 – Ranch Santa Ysabel (Arce) – 17,774 acre Mexican land grant by Governor Manuel Micheltorena to Francisco Arce.
- 1846 – Three square leagues given to Ranch Huerhuero by Governor Pio Pico.
- 1884 – The Huerhuero ranch was sold to Flint, Bixby & Co. who divide and sell the land. The town of Creston is founded.
- 1886 – Chauncey Hatch Phillips bought Ranch Santa Ysabel and subdivided it to be sold as farm lots to individuals ready to settle in the area being opened up by the arrival of the railroad.

Southeastward from the old Mission of San Miguel, the valley of the Estrella Creek stretches toward the mountains dividing San Luis from Kern County. This large tract remained unoccupied and useless for decades, save as grazing ground for a few cattle and sheep. Up to the 1870's it was regarded as a portion of some Mexican grant; then the discovery was made that this was Government land, open to settlement, and, while bare in appearance, of great fertility of soil, and well adapted to agriculture. Thus a rapid immigration set in, settlements were made, schoolhouses built, and a vast change effected. Good crops were had in 1876 and 1878, and by 1880 at least forty families had settled upon this wide and fertile tract. In 1887 the total acreage in wheat and barley, from Santa Margarita on

the south to San Miguel on the north, and from Paso de Robles to Sheid's, was 8,625 acres, of which thirteen-sixteenths was wheat. The land here is a rich, sandy loam, sparsely covered with nutritious grasses, and with live-oak and white-oak trees scattered at intervals. Water is had at an average depth of thirty feet…

… The Huer-Huero adjoins the Santa Ysabel and the Eureka on the east. It comprises 8,000 acres of valley, 23,000 acres of level and rolling farming lands, and 15,000 acres of hill grazing lands. In two years, 34,000 acres were sold to settlers, mostly of wealth and position, and the region is thickly settled. Wheat, olives, fruit and vines have been planted. About 12,000 acres of this rancho are still unsold…

… As an evidence of progress, the development of the Huer-Huero may be cited. This tract of land, comprising about 48,000 acres, was regarded as an exhausted sheep range, and less than four years ago was sold at $3 an acre. Mr. J. V. Webster, an experienced horticulturist of Alameda County, purchased a large area and soon commenced its cultivation. At the county fair, in the middle of October, 1888, he exhibited from the land grapes of the most choice varieties in large bunches. Also fig and peach trees of six feet growth in the last six months; samples of amber sugar cane, yielding at the rate of 144,000 pounds per acre, and sorghum at the rate of 175,000 pounds per acre. Ho also exhibited hops of exceedingly thrifty and rich growth, flax of good quality, melons, squashes and a great variety of products grown without irrigation, but with good cultivation…

- On September 3, 1942 construction began on the Airfield, which was to be used as a Marine Corps Bomber Base. On April 8, 1943, the field was dedicated as Estrella Army Airfield to be used by the Army Air Corps. Estrella Army Airfield consisted of 1259 acres of land, two 4,700-foot long runways, an operations building and a small, three bay fire station.
- The Marine Corps Units occupied buildings to the west, across Airport Road in what is now the California Youth Authority. On August 29, 1947 the Federal Government transferred 1,057 acres to the County of San Luis Obispo to be used as a commercial airport, and 202 acres and buildings to the State of California to be used as a Correctional Facility.
- The County of San Luis Obispo extended runway 01/19 from 4,700 feet to 6,009 feet; installed high intensity lights; and built a large hangar, ten T-Hangars and a terminal building between 1949 and 1952. In 1952 commercial air service for San Luis Obispo County began, with Southwest Airways serving the area, became Pacific Airlines, and later yet merged into Hughes Air West. This service continued until 1974.
- On May 7, 1973, the County of San Luis Obispo sold the airport to the City of Paso Robles for $1.00. At that time the County was unable to derive enough income to support the cost of running the airport. The City subdivided unused land into 81 parcels for commercial development. The City formed an all-volunteer Fire, Crash and Rescue Department to serve the airport and the surrounding area. The City took over the water wells and the sewer treatment plant from the State to serve both the Airport and the Youth Authority. In 1973 there were four businesses employing 22 people on the airport. Today the Paso Robles Municipal Airport houses almost 40 businesses, employing over 700 people.

Huer Huero Creek Watershed

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
Dry Canyon	Undetermined	Not assessed	Undetermined	Not assessed
East Branch Huer Huero Creek	Undetermined	Not assessed	Undetermined	Not assessed
Grassy	Undetermined	Not assessed	Undetermined	Not assessed
Huerto Creek	Undetermined	Not assessed	Undetermined	Not assessed
Jackson and Reinhert Ranch	Undetermined	Not assessed	Undetermined	Not assessed
MIddle Branch Huer Huero Creek	Undetermined	Not assessed	Undetermined	Not assessed
Union School	Undetermined	Not assessed	Undetermined	Not assessed
West Branch Huer Huero Creek	Undetermined	Not assessed	Undetermined	Not assessed
Wilson Canyon	Undetermined	Not assessed	Undetermined	Not assessed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County RCS, 2011)	Physical limitations, water rights and water quality issues (Carollo, 2012).	Yes; see description below.	None (CCRWQCB, 2011)

Groundwater Quality Description: Paso Robles Groundwater Basin - The predominant cat ions are calcium and sodium and the predominant anion is bicarbonate (DWR, 1981; Fugro West, 2001b). Analyses of 48 public supply wells in the sub-basin show an average Total Dissolved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study (Fugro West, 2001b), 23 of 74 samples collected exceeded one or more of the drinking water standards. The Maximum Contaminant Level (MCL) for TDS was exceeded in 14 samples (Fugro

West, 2001b). The MCL for nitrate was exceeded in 4 samples (Fugro West, 2001b). Trends show an increasing concentration of nitrate between the Salinas and Huer Huero rivers in two locations; north of Highway 46 and south of San Miguel (Fugro West, 2001b).

Increasing nitrates and chloride in the Paso Robles Formation in the area of Highway 46 between the Salinas River and Huer Huero Creek (SLO County Flood Control and Water Conservation District, 2008).

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural "ranchette") users	Carollo, 2012
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012

Groundwater: Paso Robles Groundwater Basin

According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

Huer Huero Creek Watershed

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Huer Huero Creek Watershed

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Significant Studies in Progress:

None identified

Lower San Juan Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estrella 17	Rafael/ Big Spring WPA 11, Salinas/ Estrella WPA 14	114,329 acres	Salinas River via Estrella River – to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles	County of San Luis Obispo Shandon (ptn) Los Padres National Forest

Description:

The Lower San Juan Creek watershed is located in the eastern portion of the county to the north-west of the Carrizo Plains. The headwaters are located in the La Panza range with the highest point at approximately 3600-feet. The confluence of San Juan Creek with the Estrella River occurs at Shandon. The dominant land use is agriculture. The San Juan Creek Valley is generally used most intensively for agriculture because of better soils and water availability. Irrigated production has increased during the last 10 years, particularly in vineyards and alfalfa. Dry farming and grazing operations encompass the rest of the agricultural uses. The riparian forest and a portion of the adjacent upland areas associated with the Estrella River and San Juan Creek in the vicinity of Shandon are important wildlife habitat, and serve as important corridors for wildlife movement. San Joaquin kit fox and Western burrowing owl occur in open grasslands. Another important wildlife movement corridor is located near the base of the hillside near the eastern edge of Shandon.

Existing Watershed Plans:

No existing plans to date

Lower San Juan Creek Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 9-13 in. (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 58°-100°F Winter Range (December 1990-2012): 36°-56°F (Parkfield (*not a part of the watershed*), NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Tucker Canyon, Gillis Canyon, Hughes Canyon, McDonald Canyon, Camata Canyon, Tin Pan Canyon, and Lower Shell Creek have steep pre-Quaternary non-infiltrative headwaters with steep moderately infiltrative early to mid-Tertiary valleys. Upper Shell Creek, Fernandez Creek and Camatta Creek are flat highly infiltrative Quaternary materials (Bell, pers. comm., 2013). Groundwater is found in Holocene age alluvium and the Pleistocene age Paso Robles Formation. Specific yield values in the Paso Robles Sub-basin range from 7 to 11 percent, with an average specific yield of 9 percent (Fugro West 2001c). DWR (1958) estimated the average specific yield for the sub-basin at 8 percent. DWR (1999) estimated the average specific yield at 15 percent for the alluvium and 9 percent for the Paso Robles Formation. Alluvium. Holocene age alluvium consists of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. This alluvium provides limited amounts of groundwater and reaches 130 feet thick near the Salinas River, but is generally less than 30 feet thick in the minor stream valleys (DWR 1999). Its high permeability results in a well production capability that often exceeds 1,000 gpm (Fugro West 2001a). Groundwater in Holocene alluvium is mostly unconfined. The Pleistocene age Paso Robles Formation, which is the most important source of groundwater in the sub-basin, is unconsolidated, poorly sorted, and consists of sand, silt, gravel, and clay (DWR 1979). This formation reaches a thickness of 2,000 feet and groundwater within it is generally confined (DWR 1958) (Carollo, 2012).
	Hydrology	
	Stream Gage	None (USGS, viewed August 2013)
	Hydrology Models	Yes; SLO County Flood Control and Water Conservation District, 2008, Paso Robles Groundwater Sub-basin Water Banking Feasibility Study.
	Peak Flow	No data available (USGS, viewed August 2013)
	Base Flow	No data available (USGS, viewed August 2013)

Lower San Juan Creek Watershed

	Flood Reports	No source identified
	Flood Control Structures	No data available
	Areas of Heightened Flood Risk	Poor drainage in Shandon (source); San Juan and Camatta creek listed as flood hazard areas (Shandon-Carrizo Inland Area Plan, County of San Luis Obispo, 2012)
	Biological Setting	
	Vegetation Cover	Primarily non-native annual grassland with mixed chaparral consisting mainly of California buckwheat and chamise; cropland, orchards and vineyards; chamise-redshank chaparral consisting mainly of chamise; blue oak and foothill pine; blue oak woodland; and valley foothill riparian consisting mainly of willow and saltbush. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile*
	Invasive Species	No data available
	Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Special Status Species	Status	CAMATTA CANYON	CAMATTA RANCH	CHOLAME	HOLLAND CANYON	LA PANZA RANCH	ORCHARD PEAK	POZO SUMMIT	SHANDON	SHEDD CANYON	WILSON CORNER
Animals											
American badger	SSC	x	x		x	x					x
bank swallow	ST			x					x		
blunt-nosed leopard lizard	FE; SE; FP	x			x						
burrowing owl	SSC (Burrow sites, some wintering sites)				x						

Lower San Juan Creek Watershed

Species	Status	CAMATTA CANYON	CAMATTA RANCH	CHOLAME	HOLLAND CANYON	LA PANZA RANCH	ORCHARD PEAK	POZO SUMMIT	SHANDON	SHEDD CANYON	WILSON CORNER
giant kangaroo rat	FE; SE	x			x						
prairie falcon	SA (Nesting)	x	x	x	x	x	x	x	x	x	
San Joaquin kit fox	FE; ST	x	x		x						
San Joaquin pocket mouse	SA	x									
Swainson's hawk	ST								x	x	
Tulare grasshopper mouse	SSC	x		x					x		
western spadefoot	SSC		x								
Plants											
Camatta Canyon amole	FT; SR		x								
chaparral ragwort	CRPR 2B.2		x								
dwarf calycadenia	CRPR 1B.1		x								
Indian Valley spineflower	CRPR 1B.2		x								
Kern mallow	FE		x								
La Panza mariposa-lily	CRPR 1B.3		x								
Lemmon's jewel-flower	CRPR 1B.2		x								
Mason's neststraw	CRPR 1B.1	x	x								
Munz's tidy-tips	CRPR 1B.2		x								
oval-leaved snapdragon	CRPR 4.2						x				
round-leaved filaree	CRPR 1B.1		x								
showy golden madia	CRPR 1B.1		x								
stinkbells	CRPR 4.2		x								
straight-awned spineflower	CRPR 1B.3		X								

Steelhead Streams	None (Not listed in Holland Canyon or Camatta Canyon Quads in CNDDB Database viewed 2013)
Stream Habitat Inventory	No source identified
Fish Passage Barriers	None listed in PAD Database
Designated Critical Habitat	Yes; Purple Amole (USFWS Critical Habitat Mapper, viewed 2013)
Habitat Conservation Plans	Yes; Shandon Community Plan Habitat Conservation Plan

Lower San Juan Creek Watershed

	Other Environmental Resources	San Juan River, Paso Robles Groundwater Basin, San Andreas Fault Zone of Eastern San Luis Obispo County (SLO County Flood Control and Water Conservation District, 2007)
	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, Community of Shandon
	% Urbanized	Less than 1%
	% Agricultural	90.4% (vineyard, alfalfa, dry farming)
	% Other	8.3% Open Space; 1.2% Rural Land
	Planning Area	Shandon-Carrizo Planning Area
	Potential growth areas	Shandon
	Facilities Present	Los Padres National Forest
	Commercial Uses	Agriculture
	Demographics	
	Population	488 in watershed (US Census Block, 2010) Approximately 305 in Shandon (US Census, 2010)
	Race and Ethnicity	Watershed: 49.2% Latino; 47.3% Caucasian; 1.4% Mixed Race; Less than 1% African American, Asian, American Indian (US Census Block, 2010) Shandon: 53.5% Latino; 41.1% Caucasian; 2.6% Black or African American; 0.9% American Indian and Alaska Native; 0.5% Asian; 0.2% Pacific Islander; 1.2% Mixed Race (US Census, 2010)
	Income	MHI $66,966 in watershed (US Census Tract, 2011) (from tract covering 6 watersheds) MHI $65,260 in Shandon (2007-2011 American Community Survey 5-Year Estimates)
	Disadvantaged Communities	No; 4% of individuals are below poverty level in watershed (US Census Tract, 2010) (from tract covering 6 watersheds) 19.1% of individuals are below poverty level in Shandon (2007-2011 American Community Survey 5-Year Estimates)
	Water Supply	
	Water Management Entities	County Service Area (CSA) No. l6 (Shandon); outlying properties served by individual wells - Depths of wells ranged from 100 to 665 feet (Carollo, 2012)
	Groundwater	Yes; Paso Robles Basin
	Surface Water	No public reservoirs.
	Imported Water	CSA 16 holds an allocation for 100 acre-feet per year (AFY) of the

Lower San Juan Creek Watershed

		State Water Project supply. In order to use this allocation, a turn-out on the State Water Project, which runs north-south along the eastern edge of San Juan Road, would have to be built. (SLO County, 2012)
	Recycled/Desalinated Water	None
	Key infiltration zone	No comprehensive studies have been completed to date however the Shell Creek/Camatta Creek and Lower San Juan Creek Recharge Areas in the Paso Robles Groundwater Sub-basin Water Banking Feasibility Study, 2008. Natural recharge in the basin is derived from infiltration of precipitation, seepage from streams, and return flow from irrigation and other uses (SLO County Flood Control and Water Conservation District, 2008)
	Water budget	Yes; Todd Engineers, 2013 for Paso Robles Groundwater Sub-basin Management Plan Update. *Water budget information limited by lack of data for the region*
	Water Uses	
	Beneficial Uses	*San Juan Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater habitat (WARM), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	San Andreas Fault Zone	Identified as Special Studies Zone by the State Geologist and is one of the most seismically active faults in North America. Because of the scarcity of wetlands in this arid part of the county, sag ponds along the fault have ecological significance
	Shandon Vicinity Creek Area and Habitat Area	The riparian forest and a portion of the adjacent upland areas associated with the Estrella River and San Juan Creek in the vicinity of Shandon are important wildlife habitat for the San Joaquin kit fox, Western burrowing owl and other wildlife species, and serve as important corridors for wildlife movement. Another important wildlife movement corridor is located near the base of the hillside near the eastern edge of Shandon.
	Hubbard Hill-Freeborn Mountain	Designated in Open Space land use category to emphasize protection of the area n its natural state, and use for passive recreation activities only. San Juan Creek has recreational possibilities. Mountain slopes excellent for hiking and riding with a spectacular view of Carrizo Plain.
	San Juan Ranch	44,000 acres with livestock production dating back to era of Mexican land grants. Antonio Herrera began grazing sheep in the area in 1843. In 1874, Canadian Robert Flint purchased headquarters of San Juan Ranch as well as acreage extending up

Lower San Juan Creek Watershed

		San Juan Creek.
	Palo Prieto	Located at an important crossroads for San Joaquin kit fox movement between the Carrizo Plain population, the Cirvo-Panoche population and the Salinas River Valley. Properties contain a natural lake (sag pond), Grant Lake, and numerous small vernal and seasonal ponds and pools. Wetlands support rare amphibians, crustaceans and flora. Sag ponds historically habitat for California tiger salamander, Western spadefoot toad and California toad.
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for County, not watershed specific*

Watershed Codes

Calwater/DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3317.000402	0	Undefined	0	Undefined	317.00	San Juan Valley	San Juan Ranch
3317.000403	0	Undefined	0	Undefined	317.00	San Juan Valley	Wilinson Canyon
3317.000404	0	Undefined	0	Undefined	317.00	San Juan Valley	Upper Long Canyon
3317.000405	0	Undefined	0	Undefined	317.00	San Juan Valley	Lower Long Canyon
3317.000406	0	Undefined	0	Undefined	317.00	San Juan Valley	Holland Canyon
3317.000407	0	Undefined	0	Undefined	317.00	San Juan Valley	Tin Pan Canyon
3317.000408	0	Undefined	0	Undefined	317.00	San Juan Valley	Hughes Canyon
3317.000409	0	Undefined	0	Undefined	317.00	San Juan Valley	West of Red Hills
3317.000501	0	Undefined	0	Undefined	317.00	Shandon	Tucker Canyon
3317.000502	0	Undefined	0	Undefined	317.00	Shandon	Gillis Canyon
3317.000509	0	Undefined	0	Undefined	317.00	Shandon	McDonald Canyon
3317.001001	0	Undefined	0	Undefined	317.00	Shell Creek	Camata Canyon
3317.001002	0	Undefined	0	Undefined	317.00	Shell Creek	Lower Shell Creek
3317.001003	0	Undefined	0	Undefined	317.00	Shell Creek	Camatta Creek
3317.001004	0	Undefined	0	Undefined	317.00	Shell Creek	Fernandez Creek
3317.001005	0	Undefined	0	Undefined	317.00	Shell Creek	Upper Shell Creek

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Lower San Juan Creek Watershed

Major Changes in the Watershed

The San Juan is the southern branch of the Estrella River, albeit the summer season finds only occasional pools in its broad, sandy channel. The rains convert this into a veritable river, fifty to 100 yards wide, running through small valleys and hills softly rounded, clothed in a luxuriant growth of alfilaria, wild oats, bunch-grass and flowering shrubs (Storke, 1891).

1890s - Original settlement of Shandon. Planning for original town site done by West Coast Land Company.

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Camata Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Camatta Creek	Undetermined	Not assessed	Undetermined	Not assessed
Fernandez Creek	Undetermined	Not assessed	Undetermined	Not assessed
Gillis Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Holland Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Hughes Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower Long Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower Shell Creek	Undetermined	Not assessed	Undetermined	Not assessed
McDonald Canyon	Undetermined	Not assessed	Undetermined	Not assessed
San Juan Ranch	Undetermined	Not assessed	Undetermined	Not assessed
Tin Pan Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Tucker Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Long Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Upper Shell Creek	Undetermined	Not assessed	Undetermined	Not assessed
Wilkinson Canyon	Undetermined	Not assessed	Undetermined	Not assessed

Lower San Juan Creek Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County RCS, 2011)	Physical limitations, water rights and water quality issues (Master Water Report).	Yes; see description below.	No for basin. No information for sub-basin.

Groundwater Quality Description: The predominant cations are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West, 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissoved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study, (Fugro West 2001b), 23 of 74 samples collected exceeded one or more drinking water standards. The maximum contaminant level (MCL) for nitrate was exceeded in 4 samples (Fugro West, 2001b). Water quality trends indicate an increasing concentration of TDS and chloride in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012).

Another major problem is the unpredictable occurrence of hydrogen sulfide in the ground water (DWR, 1981)

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural “ranchette”) users	Carollo, 2012
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012

Groundwater: Paso Robles Groundwater Basin

According to multiple studies of this basin, annual basin pumping is now at or near the basin’s perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater

pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Significant Studies in Progress:

Nacimiento River Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Salinas 9	Nacimiento WPA 16	237,886 acres total with 128,974 acres within San Luis Obispo County (includes 6,578 acres of San Antonio Watershed)	Salinas River (through Monterey County) to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles; Tierra Redonda Mountain (San Antonio watershed)	County of San Luis Obispo, Heritage Ranch, Oak Shores, Camp Roberts (ptn)

Photo: Althouse and Meade

Description:

The Nacimiento River Watershed is located at the northern boundary of San Luis Obispo County with a few sub-watersheds located in Monterey County. For the purposes of this snapshot, only those sub-watersheds within SLO County are included in this data compilation. This watershed also contains 6,578 acres of land from the San Antonio Watershed, however, the area within the County is relatively small and best categorized with its neighboring Nacimiento Watershed for the purposes of this project. The Nacimiento Watershed contains Lake Nacimiento, the largest reservoir in San Luis Obispo County totaling 2.26 square miles. The highest elevation in the watershed occurs in the Santa Lucia Range, within the Los Padres National Forest, reaching approximately 3,560 feet above sea level. Lake Nacimiento supplies water to the Salinas Valley and, as of 2010, supplies supplemental water to some communities in San Luis Obispo County. The dominant land use is agriculture with a majority of land used for rural grazing activities.

Existing Watershed Plans:

San Antonio and Nacimiento Rivers Watershed Management Plan (MCWRA, 2008)

Nacimiento River Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 11 in. (valley floor) - 41 in. (mountain) (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 49°-95°F Winter Range (December 1990-2012): 32°-62°F (Las Tablas Creek, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Franklin Creek and Town Creek are steep Franciscan non-infiltrative headwaters with flat pre-Quaternary moderate infiltrative valleys. Nacimiento Ranch sub-watershed is flat highly infiltrative Quaternary. Oro Fino Canyon is moderate steep moderately infiltrative early to mid-Tertiary headwaters and flat highly infiltrative Quaternary inland. Little Burnett Creek, Gould Creek, Bee Rock Canyon and Tobacco Creek have steep Franciscan non-infiltrative headwaters. Las Tablas Creek is steep moderately infiltrative early to mid-Tertiary material. Asbury Creek, Kavanaugh Creek and Pebblestone Creek are steep moderately infiltrative early to mid-Tertiary headwaters with flat pre-Quaternary moderately infiltrative valleys. Turtle Creek, Gulch House Creek, Snake Creek, Nacimiento Reservior and Dip Creek have steep pre-Quaternary non-infiltrative headwaters. Mile 7 to 11 Nacimiento River is moderately infiltrative early to mid-Tertiary headwaters with a flat Quaternary highly infiltrative valley (Bell, pers. comm., 2013). Paso Robles Formation and Vaqueros Formation are important for groundwater in the Nacimiento River watershed. Paso Roble Formation are mid to late Pliocene aged alluvial sediments. Early stream channels supplied sediment to the Nacimiento basin, allowing for the formation of sedimentary structures from mineral grains, and pebbles. (Chipping, 1987). Vaqueros Formation is well-developed east of Nacimiento and San Antonio Lakes. It is evidenced by bold sandstone and conglomerate outcroppings with beds of shale. The sandstone here is subject to cave formation due to the dissolution of calcareous cements. Lime Mountain has enough shell debris such that mine operations for liming materials is economically viable. The environment in which these fossils and associated Vaqueros materials were deposited is consistent with shallow tropical seas. Pancho Rico Formation is present near the Nacimiento Dam. It is considered to be the deep-water equivalent of the Santa Margarita Formation. The Pancho Rico contains Pliocene aged fossils and has been mapped up to 20 feet thick in the Adelaida area (Chipping, 1987).

Nacimiento River Watershed

	Hydrology	
	Stream Gage	Yes; USGS 11149500 (near San Miguel); USGS 11149400 (Nacimiento Dam near Bradley); USGA 11148900 (Sapaque Creek near Bryson) (USGS, viewed August 2013)
	Hydrology Models	Yes; Monterey County Water Resources Association. 2001. Hydrologic impact of Salinas Valley Water Project.
	Peak Flow	Near Bryson: 57,600 cfs. (USGS, 1971-2012) Near Bradley: 8,110 cfs. (USGS, 1958-2012) (north of SLO County)
	Base Flow	Bradley: 402 cfs. (USGS, viewed August 2013) (north of SLO County)
	Flood Reports	No source identified
	Flood Control Structures	Nacimiento River Dam Bridges: 4 over Las Tablas Creek on Klau Mine Road, Chimney Rock Road and Cypress Mountain Drive (2); 2 over Klau Creek on Cypress Mountain Drive (PWD Bridges GIS Layer)
	Areas of Flood Risk	Nacimiento River and Canyon; Dip, Franklin, Las Tablas, Snake and Town Creeks; and Lake Nacimiento - Flood Hazard (FH). These water courses are identified as having potential flood hazards and development proposals must incorporate mitigation measures. All are natural drainage courses which should be maintained in their natural state with native vegetation and habitats retained. At Lake Nacimiento, the 800 foot elevation constitutes the lake's high water level and no habitable structures are permitted below the 825 foot elevation. (Heritage Ranch Village Plan, 2013)
	Biological Setting	
	Vegetation Cover	Primarily blue oak and foothill pine; chamise chaparral; coastal oak woodland with blue oak and coast live oak; blue oak woodland with non-native annual grassland; valley oak woodland with; coast live oak, foothill pine and valley oak; mixed chaparral consisting mainly of chamise and serpentine Manzanita; orchards, vineyards, and nurseries; and montane hardwood-conifer consisting mainly of coulter pine. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile* Grassland, scrub/shrub, mixed forest (MCWRA, 2008) Native perennial bunchgrasses occur within the watershed. Valley needlegrass grassland habitat occurs within the watershed; valley needlegrass grassland is designated as a sensitive natural community by the California Department of Fish and Wildlife (Althouse and Meade, Inc. 2006). Valley oak woodland occurs within the watershed, and is designated a sensitive natural community by the California Department of Fish and Wildlife (Althouse and Meade, 2013). Wetlands and riparian woodland are present in this watershed, and although

their areal extent is small relative to the size of the watershed these habitats provide crucial ecosystem functions (Althouse and Meade, 2013).
Data limited to observations, not complete inventory

Invasive Species

Bromus spp. (MCWRA, 2008)
Data limited to observations, not complete inventory

Special Status Wildlife and Plants

Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013)

Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered.
Data limited to observations, not complete inventory

Species	Status	ADELAIDA	ALDER PEAK	BEAR CANYON	BRADLEY	BRYSON	BURNETT PEAK	BURRO MOUNTAIN	CAPE SAN MARTIN	CONE PEAK	CYPRESS MTN	JOLON	LIME MTN	PASO ROBLES	PEBBLESTONE SHUT-IN	SAN MIGUEL	SAN SIMEON	TIERRA REDONDO MOUNTAIN
Animals																		
American badger	SSC	x			x									x		x		
bald eagle	Federally Delisted; SE; FP				x							x	x					
Burrowing owl	SSC (Burrow sites, some wintering sites)				x											x		
California linderiella	SA											x						
California red-legged frog	FT										**x**		**x**					
California tiger salamander	FT; ST		x									x						
Coast Range newt	SSC								x									
ferruginous hawk	SA (Wintering)				x													
foothill yellow-legged frog	SSC							x										
golden eagle	FP				x													
hoary bat	SSC				x													
monarch butterfly	SA		x				x	x									x	

Nacimiento River Watershed

Species	Status	ADELAIDA	ALDER PEAK	BEAR CANYON	BRADLEY	BRYSON	BURNETT PEAK	BURRO MOUNTAIN	CAPE SAN MARTIN	CONE PEAK	CYPRESS MTN	JOLON	LIME MTN	PASO ROBLES	PEBBLESTONE SHUT-IN	SAN MIGUEL	SAN SIMEON	TIERRA REDONDO MOUNTAIN
Monterey dusky-footed woodrat	SSC	x																
pallid bat	SSC				x				x									
prairie falcon	SA (Nesting)	x			x	x	x	x				x	x		x		x	x
Salinas pocket mouse	SSC	x			x											x		
San Joaquin kit fox	FE; ST	x			x									x		x		
San Joaquin whipsnake	SSC				x													
silvery legless lizard	SSC				x	x												
tricolored blackbird	SSC (Nesting)						x					x						
vernal pool fairy shrimp	FT	x			x							x				x		
western pond turtle	SSC		x	x	x					x		x	x			x		
western spadefoot	SSC	x			x											x		
							Plants											
Abbott's bush-mallow	CRPR 1B.1					x												
Arroyo de la Cruz manzanita	CRPR 1B.2														x		x	
bristlecone fir	CRPR 1B.3		x						x									
caper-fruited tropidocarpum	CRPR 1B.1						x					x						
Carmel Valley bush-mallow	CRPR 1B.2										x							
Carmel Valley malacothrix	CRPR 1B.2				x													
chaparral ragwort	CRPR 2B.2						x					x						
Cone Peak bedstraw	CRPR 1B.3		x				x	x	x	x								
Cook's triteleia	CRPR 1B.3	x					x	x			x		x		x			

Nacimiento River Watershed

Species	Status	ADELAIDA	ALDER PEAK	BEAR CANYON	BRADLEY	BRYSON	BURNETT PEAK	BURRO MOUNTAIN	CAPE SAN MARTIN	CONE PEAK	CYPRESS MTN	JOLON	LIME MTN	PASO ROBLES	PEBBLESTONE SHUT-IN	SAN MIGUEL	SAN SIMEON	TIERRA REDONDO MOUNTAIN
Davidson's bush-mallow	CRPR 1B.2					x	x					x						x
dwarf calycadenia	CRPR 1B.1	x	x		x		x	x		x		x	x					
Hardham's bedstraw	CRPR 1B.3		x				x	x			x						x	
Hardham's evening-primrose	CRPR 1B.2				x													
Hickman's checkerbloom	CRPR 1B.3		x	x			x	x				x						
hooked popcorn-flower	CRPR 1B.2		x		x		x	x				x	x					
Jolon clarkia	CRPR 1B.2									x								
Kellogg's horkelia	CRPR 1B.1													x				
Koch's cord moss	CRPR 1B.3				x													
late-flowered mariposa-lily	CRPR 1B.2		x				x	x							x			
Lemmon's jewel-flower	CRPR 1B.2	x			x													
most beautiful jewel-flower	CRPR 1B.2		x				x	x			x		x		x		x	
Norris' beard moss	CRPR 2B.2						x					x						
pale-yellow layia	CRPR 1B.1	x			x	x	x											x
Palmer's monardella	CRPR 1B.2		x				x	x										
Pecho manzanita	CRPR 1B.2										x		x					
prostrate vernal pool navarretia	CRPR 1B.1				x													
round-leaved filaree	CRPR 1B.1																	x
San Antonio collinsia	CRPR 1B.2						x					x						
San Benito fritillary	CRPR 1B.2		x						x									

Nacimiento River Watershed

Species	Status	ADELAIDA	ALDER PEAK	BEAR CANYON	BRADLEY	BRYSON	BURNETT PEAK	BURRO MOUNTAIN	CAPE SAN MARTIN	CONE PEAK	CYPRESS MTN	JOLON	LIME MTN	PASO ROBLES	PEBBLESTONE SHUT-IN	SAN MIGUEL	SAN SIMEON	TIERRA REDONDO MOUNTAIN
San Luis Obispo owl's-clover	CRPR 1B.2	x			x													
San Luis Obispo sedge	CRPR 1B.2					x	x								x		x	
San Simeon baccharis	CRPR 1B.2							x										
Santa Cruz Mountains pussypaws	CRPR 1B.1		x				x	x				x						
Santa Lucia bedstraw	CRPR 1B.3							x		x								
Santa Lucia bush-mallow	CRPR 1B.2										x							
Santa Lucia dwarf rush	CRPR 1B.2	x																
Santa Lucia manzanita	CRPR 1B.2										x		x					
Santa Lucia mint	SE		x				x	x				x						
Santa Lucia purple amole	FT				x		x					x						
shining navarretia	CRPR 1B.2	x			x									x				
small-flowered calycadenia	CRPR 1B.2		x					x										
straight-awned spineflower	CRPR 1B.3				x													
Toro manzanita	CRPR 1B.2						x											
umbrella larkspur	CRPR 1B.3	x																
yellow-flowered eriastrum	CRPR 1B.2		x									x	x					x

Steelhead Streams	Yes; Lower Nacimiento River (San Antonio and Nacimiento Rivers Watershed Management Plan)
Stream Habitat Inventory	Yes; DFG, lower Nacimiento River 2001; upper Nacimiento River 2002.
Fish Passage Barriers	PAD ID: 718837- Dam at Nacimiento Lake on Nacimiento River. Total Barrier. PAD ID: 719387- Dam at Las Tables Creek on Nacimiento River. Unknown Status. PAD ID: 719878- Dam at Hughes Reservoir on Aqua Fria Creek, tributary

		to Nacimiento River. Total Barrier. 3.95239 miles upstream. PAD ID: 719877- Dam at El Piojo on El Piojo Creek, tributary to Nacimiento River. Total Barrier. 6.01579 miles upstream PAD ID: 718839- Dam at Lower Stony Valley on Stony Creek, tributary to Nacimiento River. Total Barrier. 52.86096 miles upstream. PAD ID: 705325- Non-structural barrier (waterfall, grade, temperature etc) on Salmon Creek, a tributary to Nacimiento River. Total Barrier (End of anadromy). 37.1145 miles upstream.
	Designated Critical Habitat	Yes; Nacimiento *River (*50 CFR *226* - National Marine Fisheries Service - NOAA) and Vernal Pool Fairy Shrimp (US Fish and Wildlife – Critical Habitat Mapper)
	Habitat Conservation Plans	Yes; North San Luis County Habitat Conservation Program – Multiple species, initially San Joaquin kit fox *General for North County, not watershed specific*
	Other Environmental Resources	Paso Robles Groundwater Basin, Nacimiento Reservoir, Lake Nacimiento, Tierra Redonda Mountain National Area, various fisheries
	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, Oak Shores (Lake Nacimiento), Heritage Ranch (Lake Nacimiento), Camp Roberts
	% Urbanized	5.02% [0.02% commercial retail; 5% residential (oak shores & Heritage Ranch)] (SLO County LUC)
	% Agricultural	46%: fields, vineyards, orchards and rangeland (SLO County LUC)
	% Other	49.4 % (9.4% open space; 15.7% public facilities (majority Camp Roberts); 2.3% recreation; 22% rural lands)(SLO County LUC)
	Planning Areas	Nacimiento and Adelaida Planning Areas (SLO County)
	Potential growth areas	Oak Shores, Heritage Ranch (SLO County General Plan, 2011)
	Facilities Present	Camp Roberts, Lake Nacimiento , Heritage Ranch CSD pump station at the southerly bank of Nacimiento River downstream from lake (Heritage Ranch CSD); Jim McWilliams Water Treatment Plant (Heritage Ranch CSD); Heritage Ranch Sewer Treatment Plant; Oak Shores Wastewater Treatment Plant (County service area 7A);
	Commercial Uses	Recreation at Lake Nacimiento, grazing, mining, agriculture, retail and service providers.
	Demographics	
	Population	3,108 in watershed (US Census Blocks, 2010) 337 in the community of Oak Shores (US Census, 2010)
	Race and Ethnicity	Watershed: Caucasian, representing 84%. Latinos represent 10.4%. Mixed-race representing 2.5%. The remaining races each represent less than 4%, including African American, American Indian, Pacific Islander, and Asian. (US Census Blocks, 2010) Oak Shores: 86.9% Caucasian; 9.2% Latino and Hispanic; 1.5% Mixed Race; 0.9%

Nacimiento River Watershed

		Black or African American; 0.9% Asian (2010 Demographic Profile Data, US Census Bureau)
	Income	MHI $62,721 in watershed (US Census Tracts, 2010) MHI $ 97,639 in Oak Shores (US Census, 2010)
	Disadvantaged Communities	No; 4.0% of individuals are below poverty level in Watershed (US Census Tracts, 2010) 8.6% of individuals below poverty level in Oak Shores (2007-2011 American Community Survey 5-Year Estimates)
	Water Supply	
	Water Management Entities	Heritage Ranch CSD; Nacimiento Water company (Oak Shores); outlying areas served by Individual wells
	Groundwater	Yes; Paso Robles Basin; Tierra Redonda Mountain (San Antonio watershed); Understream flows (Heritage Ranch CSD – Nacimiento River)
	Surface Water	Yes. Lake Nacimiento (SLOCountyWater.org) San Luis Obispo County Flood Control and Water Conservation District has an entitlement for 17,500 acre feet per year from the lake (secured in 1959). Of this amount, the proposed Nacimiento Water Supply Project will transport a maximum of 15,750 acre feet of water per year from the lake for delivery to 5 purveyors throughout San Luis Obispo County. (San Luis Obispo County Nacimiento Water project website) Atascadero Mutual Water Company – 2,000 afy City of Paso Robles – 4,000 afy Templeton Community Services District – 250 afy City of San Luis Obispo Community Services Area 10, Benefit Zone A (Southern Cayucos)
	Imported Water	None
	Recycled/Desalinated Water	None
	Key aquifer percolation zone	No data available
	Water budget	Yes; Todd Engineers, 2013 for Paso Robles Groundwater Sub-basin Management Plan Update
	Water Uses	
	Beneficial Uses	*Nacimiento Reservoir* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRESH), Navigation (NAV), and Commercial and Sport Fishing (COMM).

	Upper Las Tablas Creek - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM). *Salinas River (Nacimiento River-Santa Margarita Reservoir)* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PRO), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE) and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
Other Unique Characteristics	
Historical Resources	Adelaida School (9001 Chimney Rock Road, Paso Robles); Adelaida Cemetery (Chimney Rock & Adelaida Road, Paso Robles); J.F. MacGillivray Residence (PLN_DES_HISTORIC_POINTS GIS layer)
Tierra Redonda Mountain	Broad table-top mountain that encompasses approximately 1,300 acres in the Santa Lucia Range. Has outstanding ecological importance and been given high priority for preservation by State Department of Parks and Recreation
Camp Roberts	Thirteen ponds and reservoirs (65 acres) which are either natural or artificially created for use as livestock ponds or flood control. A total of 120 aquatic species representing 64 families of organisms were recorded from rivers, ponds, and reservoirs on Camp Roberts. Eight species of fish, 44% of species native to Salinas River drainage, have been recorded at Camp Roberts from Nacimiento River
Buena Vista and Klau mines	Identified as the primary point and nonpoint sources of mercury contamination in the watershed. Annual mercury loadings depend on the proportion of mercury rich sediment that reaches the lake in any given year. Mercury mining and ore processing operations occurred at the mines between 1868 and 1970. The site consists of mining wastes and releases from two abandoned mercury mines located on contiguous properties on a northwest-southeast trending ridge of the Santa Lucia Range in the California coastal mountains
Nacimiento Dam	Facilities include the embankment dam, powerplant, spillway, and high and low-level reservoir outlets. Created primarily for water conservation, flood control and replenishment of the Salinas River groundwater basin, it is one of the major recreational attractions on the Central Coast. It has 165 miles of shoreline and a maximum pool surface of 5,400 acres supporting swimming, boating, water skiing, and fishing

Nacimiento River Watershed

	Los Padres National Forest	Forest vegetation classified into two major types: chaparral and forested lands. Provides a diverse wildlife habitat with 23 threatened and endangered animals. Member of the California Condor Recovery Program and has been an active player in the reintroduction of California condors in the wild. The Forest has one endangered plant, two threatened plant species and 71 sensitive plant species. Management of riparian vegetation focuses on supporting fish and wildlife populations. There are over 870,000 acres of livestock grazing allotments in the Forest. Considerable risk of wildfire in the forest, with historic average of 25,000 acres burned per year.
	Hearst Ranch	Hearst Ranch encompasses an impressive variety of habitats and topography - elevations on the Ranch rise from sea level along the coastline to 3,600 feet on some of the peaks along the ridgeline of the Santa Lucia Mountains. Grassland-covered coastal terraces extend to natural sea bluffs, rocky headlands and sandy beaches. Over 1,400 acres of riparian woodland is present on the property. Riparian woodland species include Sycamore and Coast live oak.
	Grasslands Reserve Program	1478 acres held by the Natural Resource Conservation Service (National Conservation Easement Database, viewed 2013)
	Lake Nacimiento Drive Interlake Road – Sensitive Resource Area (SRA).	The portion of this route from Chimney Rock Road northwest to the Monterey County line is an adopted State scenic highway route. All development in this corridor must be sited to minimize visual impacts. (Heritage Ranch Village Plan, 2013)
	Climate Change Considerations	
		See IRWMP, 2014 Section H. Climate Change *Data is general for County, not watershed specific*

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Name	CDF Super Planning Watershed Name	CDF Watershed Name
3309.810504	8	Paso Robles	1	Atascadero	309.81	Bradley	Oro Fino Canony
3309.810504	8	Paso Robles	1	Atascadero	309.81	S. Side San Antonio Res.	Bee Rock Canyon
3309.810504	8	Paso Robles	1	Atascadero	309.81	Bryson	Turtle Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Bryson	Gulch House Creek (ptn in Monterey Co.)

Nacimiento River Watershed

3309.810504	8	Paso Robles	1	Atascadero	309.81	Lynch Canyon	Asbury Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lynch Canyon	Pebblestone
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lynch Canyon	Kavanaugh Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Tobacco Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Gould Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Town Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	S. Shore Nacimiento Res.
3309.810504	8	Paso Robles	1	Atascadero	309.81	McLaughlin Canyon	Little Burnett Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Lower Las Tablas Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Franklin Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Dip Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Snake Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Adelaida	Upper Las Tablas Creek
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lower Nacimiento River	Mile 7 to 11 Nacimiento River
3309.810504	8	Paso Robles	1	Atascadero	309.81	Lower Nacimiento River	Nacimiento Ranch
3309.820000	n/a	Paso Robles	n/a	Nacimiento Reservoir	309.82	Undefined	Undefined

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

- In 1956, Nacimiento Dam was constructed, designed to provide irrigation water, flood control, and recreation opportunities by the Monterey County Water Authority. They use the lake to recharge their groundwater basins.
- Prior to dam construction Nacimiento River and Las Tablas Creek were among the most important Salinas River tributaries for steelhead populations.
- The concern of low water elevation in Lake Nacimiento is almost an annual occurrence during the fall season. Lake Nacimiento is totally dependent on annual rain fall run off into the main body of the lake. The lake is the most active watershed in the State and can reach capacity during one wet season. Conversely, low rain fall years severely impact the amount of water collected each winter. Historically, the lake has gone through multiple years of high water elevations and corresponding multiple years with low water elevations.
- Heritage Ranch did not really become established and begin to grow before early 70s

Nacimiento River Watershed

- For much of the Ranch's history the community was mainly used as a summer recreation area and as part-time residences with very little development growth. However in the last few years, stimulated by high property values in the County, we have experienced rapid growth with larger traditional single family homes with full-time residents living on large lots with extensive landscaping. A new school has been built, and plans are moving forward with a commercial retail center.
- The Water Conservation Plan and a Staged Water Use Reduction Plan
- Jill McWilliams Water Treatment Plant constructed in 1994 to comply with Surface Water Treatment Rules.
- The effluent is then collected and piped to the adjacent ephemeral drainage way which courses northeasterly to and across Camp Roberts Military Reservation. The point of discharge, and the entire service area of the District, overlays the "Paso Robles" geological formation whose characteristics include low permeability. The discharge flows largely intact for about 1.5 miles whereupon it percolates almost immediately upon meeting the "Monterey" formation, characteristically a high permeable formation. The discharge is down gradient of Lake Nacimiento, but can occasionally flow all the way to the Nacimiento River during significant storm runoff. The discharge does not impact the water quality of Lake Nacimiento.
- The wastewater system serving Oak Shores adjacent to Lake Nacimiento was originally constructed as part of the community's development in 1974 and is operated by the county as part of County Service Area No. 7. There are 606 total water connections at Oak Shores, and it's the county's understanding that there are 275 permanent residents. North Shore Boat and Ski Club has a total of 40 service connections with 15 permanent residents; and Lake Nacimiento Resort has 300 connections total for their campgrounds with 10-year-round residents – for a grand total of 946 total service connections.
- Oak Shores WWTP constructed in 1975
- 2007 – EPA installed several monitoring probes in streams to measure effects of acid mine drainage on pH levels
- 2008 – Assessment to identify endangered, threatened or sensitive plants or animals that may be affected by site contamination.

Watershed Health – Summary by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Asbury Creek	Undetermined	Not assessed	Undetermined	Not assessed
Dip Creek	Undetermined	Not assessed	Undetermined	Not assessed
Franklin Creek	Undetermined	Not assessed	Undetermined	Not assessed
Gould Creek	Undetermined	Not assessed	Undetermined	Not assessed
Gulch House Creek	Undetermined	Not assessed	Undetermined	Not assessed
Kavanaugh Creek	Undetermined	Not assessed	Undetermined	Not assessed
Little Burnett Creek	Undetermined	Not assessed	Undetermined	Not assessed

Las Tablas Creek	Undetermined	Yes; Metals	Surface Mining	Not assessed
Mile 7 to 11 Nacimiento River	Undetermined	Not assessed	Undetermined	Not assessed
Nacimiento Ranch	Undetermined	Not assessed	Undetermined	Not assessed
Nacimiento Reservior	Perennial	Yes; Mercury, Metals	Surface mining, Natural Sources	Not assessed
Pebblestone Creek	Undetermined	Not assessed	Undetermined	Not assessed
Snake Creek	Undetermined	Not assessed	Undetermined	Not assessed
Tobacco Creek	Undetermined	Not assessed	Undetermined	Not assessed
Town Creek	Undetermined	Not assessed	Undetermined	Not assessed
Turtle Creek	Undetermined	Not assessed	Undetermined	Not assessed
*Bee Rock Canyon (subset)	Undetermined	Not assessed	Undetermined	Not assessed
*Oro Fino Canyon (subset)	Undetermined	Not assessed	Undetermined	Not assessed

Watershed Health – Summary by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County, 2012)	Physical limitations, water rights and water quality issues (Carollo, 2012).	Yes; see description below.	None (CCRWQCB, 2011)

Groundwater Quality Description: The predominant cations in the watershed are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissolved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study (Fugro West 2001b), 23 of 74 samples collected exceeded one or more of the drinking water standards. The Maximum Contaminant Level (MCL) for TDS was exceeded in 14 samples (Fugro West 2001b). The MCL for nitrate was exceeded in 4 samples. The Bradley portion of the sub-basin had the highest percentage of samples with constituents higher than the drinking water standards (Fugro West, 2001b) Trends show an increasing concentration of nitrate between the Salinas and Huer Huero rivers south of San Miguel (Fugro West, 2001b; Carollo, 2012)

Generally high concentrations of TDS, chlorides, sulfates, and boron were identified for the Cholame Valley Basin (Chipping, et al., 1993). Increasing chlorides in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012)

Nacimiento River Watershed

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural "ranchette") users	Carollo, 2012
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012
Las Tablas Creek 303(d) listed for metals	Surface mining	Carollo, 2012
Nacimiento Reservoir 303(d) listed for mercury, metals	Surface mining, natural sources	Carollo, 2012
Steelhead passage	Nacimiento River in this watershed includes designated critical habitat which must be considered in planning.	50 CFR *226* - National Marine Fisheries Service - NOAA

According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

Nacimiento River Watershed

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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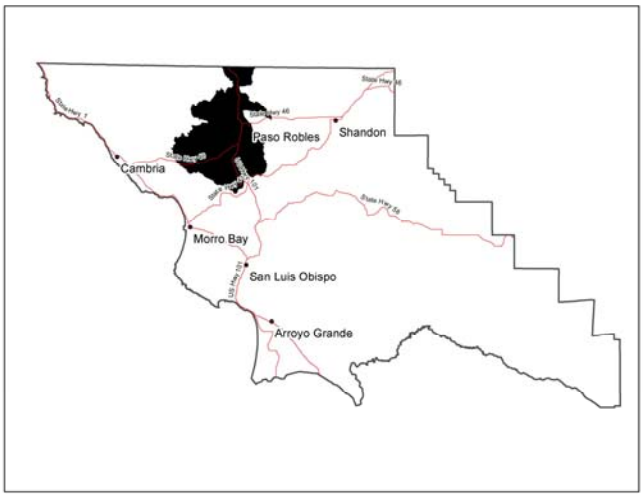
Significant Studies in Progress:

Lower Salinas - Paso Robles Creek Area Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Salinas 9	Atascadero/ Templeton WPA 13 Salinas/ Estrella WPA 14	143,654 acres	Salinas River (to Monterey Bay National Marine Sanctuary)	Paso Robles, Paso Robles Creek	County of San Luis Obispo Paso Robles (ptn), Atascadero (ptn), Templeton, San Miguel, Camp Roberts



Existing Watershed Management Plans:

No existing plans to date

Description:

The portion of the Salinas River Watershed classified here is located centrally within San Luis Obispo's North County region and encompasses Paso Robles Creek. Because of the extensive reach of the Salinas River watershed, we have utilized a watershed grouping scale that is consistent with the CalWater hydrologic unit code 10, which separates the River into 3 segments within San Luis Obispo County. We have merged 3 of the Indian Valley subwatersheds into this grouping since the bulk of the Indian Valley watershed is located in Monterey County. A majority of the City of Paso Robles, approximately one-half of the City of Atascadero (northern portion), the town of San Miguel, and the community of Templeton are all located within this watershed. It is within this watershed that most development has occurred along the Salinas River, both urban and rural agricultural. The western portion of the watershed is characterized by higher elevations with more dense oak woodlands whereas east of the Salinas River is characterized by more rolling hills and terraces. The peak elevation within the watershed occurs at the westernmost boundary reaching approximately 2,460 feet. The sub-watersheds drain toward the Salinas River. The northern portion of the watershed contains the point at which the Salinas River leaves San Luis Obispo County and flows into Monterey County. The headwaters are in the Coast Ranges, east of city of Paso Robles. The dominant land use is agriculture with a strong urban component located adjacent to the Salinas River. As urban uses are located next to the Salinas, multiple river crossings occur in this watershed and the 101 freeway parallels the Salinas River in many locations.

Lower Salinas - Paso Robles Creek Area Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 11-18 in, (northeast portion), 25-33 in. (southeast portion) (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 52°-98°F Winter Range (December 1990-2012): 32°-62°F (Paso Robles, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	McKay, Mahoney Canyon, Lower Vineyard Canyon, Fern Canyon, Neals Spring, Templeton and Asuncion sub-watersheds are composed of flat highly infiltrative Quaternary materials. Graves Creek and Upper Paso Robles Creek are steep pre-Quaternary non-infiltrative headwaters with steep moderately infiltrative early to mid-Tertiary valleys. Sheepcamp Creek and Summit Creek are composed of steep moderately infiltrative early to mid-Tertiary fill. Mustard Creek has steep pre-Quaternary non-infiltrative headwaters with flat highly infiltrative Quaternary valley floor. Upper San Marcos Creek, San Francisco Canyon, Cienega Canyon and Santa Rita Creek have steep pre-Quaternary non-infiltrative headwaters. Lower San Marcos Creek, Bethel School and Lower Paso Robles Creek sub-watersheds have moderately infiltrative early to mid-Tertiary headwaters with flat Quaternary highly infiltrative valleys (Bell, pers. comm., 2013). Groundwater is found in Holocene age alluvium and the Pleistocene age Paso Robles Formation. Specific yield values in the Paso Robles Sub-basin range from 7 to 11 percent, with an average specific yield of 9 percent (Fugro West 2001c). DWR (1958) estimated the average specific yield for the sub-basin at 8 percent. DWR (1999) estimated the average specific yield at 15 percent for the alluvium and 9 percent for the Paso Robles Formation. Holocene age alluvium consists of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. This alluvium provides limited amounts of groundwater and reaches 130 feet thick near the Salinas River, but is generally less than 30 feet thick in the minor stream valleys (DWR 1999). Its high

		permeability results in a well production capability that often exceeds 1,000 gpm (Fugro West, 2001). Groundwater in Holocene alluvium is mostly unconfined. Pleistocene age Paso Robles Formation, which is the most important source of groundwater in the sub-basin, is unconsolidated, poorly sorted, and consists of sand, silt, gravel, and clay (DWR, 1979). This formation reaches a thickness of 2,000 feet and groundwater within it is generally confined (DWR 1958). Bedrock is composed of granitic and metamorphic materials of the Salinian Block. The Salinian basement block is separated from the adjacent Franciscan basement by the San Andreas Fault in the northeast corner of the area and by the Nacimiento Fault zone in the Southwest corner. Overlying both basement blocks is a sequence of Cretaceous and Tertiary marine deposits and the nonmarine Paso Robles Formation. Serpentines occur in the area as ultramafic Franciscan Formation. Granite outcrops are typically coarse grained biotites. The Santa Margarita Formation crops out in the eastern part of the San Miguel quadrangle. The Pancho Rico Formation lies in a broad belt from the northeastern part of the Bradly quadrangle across the San Miguel quadrangle. These two units are exposed in the same stratigraphic sequence. Monterey shale is generally deformed into broad folds where it is thick, but near faults it is commonly tightly folded, contorted and overturned. Sandy and conglomerate units are tilted or warped into broad folds (Burch and Durham, 1970).
	Hydrology	
	Stream Gage	Yes; USGS 11147500 (Salinas River at 13th Street, Paso Robles); USGS 11147070 (Santa Rita Creek near Santa Rita Road); USGS 11147040 (Santa Rita Creek near Old Creek Road); USGS 11147000 (Jack Creek near Highway 46W) (USGS, viewed August 2013)
	Hydrology Models	Yes; SLO County Flood Control and Water Conservation District, 2008, Paso Robles Groundwater Sub-basin Water Banking Feasibility Study. Todd Engineers, 2013, Paso Robles Groundwater Basin Update.
	Peak Flow	Peak flow: 28,400cfs. (USGS, viewed August 2013)
	Base Flow	Salinas River: 600 cfs. (USGS, viewed August 2013)
	Flood Control Structures	Bridges: 1 over Vineyard Creek on Indian Valley Road; 1 over Salinas River on River Road (PWD Bridges GIS Layer)

		Caltrans culverts convey HWY 1 stormwater onto road surfaces of 10th, 12th, 14th, and 16th Street.
	Flood Reports	The SLO County Flood Control and Water Conservation District commissioned a community wide master drainage study for Templeton. The initial and subsequent phases of the study are intended to characterize existing drainage patterns, analyze flood problems and identify proposed near and short term solutions (Fugro, 2010: SLO County Flood Control and Water Conservation District, 2009) Additionally, in 2009 the California Department of Water Resources conducted the San Miguel Drainage and Flood Control Study. *Data limited by scope of related study, does not address Watershed level flooding, more specific to Templeton area*
	Areas of Heightened Flood Risk	Templeton lacks a formal drainage system and flood control infrastructure. Tributaries of Toad Creek collect drainage from the west side of the town, and convey them under Highway 101 through densely developed residential neighborhoods between Highway 101 and Main Street. (County of SLO facilities Inventory, draft viewed 2013) The freeway culverts at both the south and middle area are undersized, restricting flow causing potential flooding at the inlets. The length of Toad Creek between Main Street and the Southern Pacific Railroad is susceptible to flooding. Urbanization of the north sub area could have a very significant impact on this flooding. The area east of Main Street is currently in a Flood Hazard Zone. (Templeton Design Plan, 1990) 1.38 square miles of Paso Robles is within an identified floodplain of the Salinas River and its tributaries. San Luis Obispo County has also identified additional areas in the vicinity of Marquita Road, and an area bounded by Herdsman Way to the south, West Bethel Road to the west, and Highway 46 West to the north; and an area north of Highway 46 West, west of Arbor Road, and south of Live Oak Road as flood prone (City of Paso Robles, 2005). Illegal off-road use of the Salinas River near San Miguel causes displacement of the river bed, pollution of the river, and destruction of riparian vegetation along 20 miles of the river (US-LT RCD, 2003). The community of San Miguel lacks formal drainage. Local runoff follows the gentle northeasterly slope of the community and either flows to the Salinas River or infiltrates

		into the historic flood plain. Low spots cause frequent ponding and shallow flooding at several locations (SLO Flood Control and Water Conservation District, 2009) Abandoned vehicles and illegal dumping in the Salinas River continues to be a problem. (US-LT RCD, 2003) Ponding of stormwater west of Union Pacific Railroad tracks can result in the flooding of Mission Street from 11th to 16th street. The tracks bisect the community and impede flows from reaching Salinas River on the eastside. The primary cause of flooding in San Miguel is due to the absence of a continuous slope and drainage conveyance path from L Street to the Salinas River (SLO County Flood Control and Water Conservation District, 2009).
	Biological Setting	
	Vegetation Cover	Primarily coastal oak woodland consisting mainly of continuous coast live oak; chamise-redshank and mixed chaparral consisting mainly of chamise; orchards and vineyards with non-native annual grassland; oak woodland consisting mainly of continuous coast live oak and blue oak; urban; montane hardwood consisting mainly of continuous coast live oak. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile.* Bunchgrass grasslands, wetlands, riparian woodlands, seeps, and vernal pools are also present. These habitats support uniquely adapted plants and provide important ecological functions. They also provide habitat for wildlife, including rare and endangered species. The Salinas River Riparian corridor is mature, multi-layered woodland habitat with sycamore (*Platanus racemosa*), cottonwood (*Populus fremontii*), and willow (*Salix* spp.) that provide habitat for many species of songbirds and raptors. Riparian canopy also provides shade that can regulate water temperature (Althouse and Meade, 2013). *Data limited to observations, not complete inventory*
	Invasive Species	The following invasive species have been identified in the Lower Salinas-Paso Robles Creek Area Watershed: Giant reed grass (*Arundo donax*), tree of heaven (*Ailanthus altissima*), pampas grass (*Cortaderia selloana*), Perennial pepperweed (*Lepidium latifolium*), Skeleton weed (*Chondrilla juncea*), common unicorn (*Proboscidea louisianica*), Russian thistle (*Salsola tragus*), Medusahead (*Taeniatherum caput-medusae*), Tamarisk (*Tamarix* sp.) (Althouse and Meade, 2013). Poison hemlock, yellow star

	thistle, cheeseweed mallow, black mustard, ripgut brome, horseweed, Prickley lettuce and milkthistle have also been identified (Sierra Delta Corporation, 2007) *Data limited to observations, not complete inventory*
Special Status Wildlife and Plants	*Key*: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Special Status Species	Status	ADELAIDA	ATASCADERO	CRESTON	CYPRESS MTN	PASO ROBLES	TEMPLETON	YORK MTN
Animals								
American badger	SSC	x					x	
Atascadero June beetle	SA		x			x	x	
California red-legged frog	FT				x		x	x

Special Status Species	Status	ADELAIDA	ATASCADERO	CRESTON	CYPRESS MTN	PASO ROBLES	TEMPLETON	YORK MTN
Coast Range newt	SSC		x					x
least Bell's vireo	FE; SE					x		
Lompoc grasshopper	SA					x	x	
Monterey dusky-footed woodrat	SSC	x						
Salinas pocket mouse	SSC	x						
San Joaquin kit fox	FE; ST	x				x	x	
San Joaquin pocket mouse	SA					x		
silvery legless lizard	SSC	x					x	
vernal pool fairy shrimp	FT	x					x	
western pond turtle	SSC					x	x	x
western spadefoot	SSC	x					x	
Plants								
Carmel Valley bush-	CRPR 1B.2				x			

		mallow						
		Cook's triteleia	CRPR 1B.3	x				
		dwarf calycadenia	CRPR 1B.1	x				
		Eastwood's larkspur	CRPR 1B.2		x			x
		Kellogg's horkelia	CRPR 1B.1				x	
		Lemmon's jewel-flower	CRPR 1B.2				x	x
		mesa horkelia	CRPR 1B.1		x			x
		most beautiful jewel-flower	CRPR 1B.2		x	x		
		round-leaved filaree	CRPR 1B.1					x
		Santa Cruz Mountains pussypaws	CRPR 1B.1	x				
		Santa Lucia bush-mallow	CRPR 1B.2			x		
		Santa Lucia dwarf rush	CRPR 1B.2	x		x		x
		shining navarretia	CRPR 1B.2	x			x	x
		umbrella larkspur	CRPR 1B.3	x				
		woodland woollythreads	CRPR 1B.2	x			x	
		yellow-flowered eriastrum	CRPR 1B.2		x			X
	Steelhead Streams	Yes; Paso Robles Creek, Jack Creek (watershed fisheries report) Salinas River, Graves Creek, Santa Rita Creek, Summit Creek, Sheepcamp Creek, San Marcos Creek (US Fish and Wildlife – Critical Habitat Mapper) Likely to be present: Willow Creek (NMFS South-Central California Coast Steelhead Trout Dataset, 2005).						
	Stream Habitat Inventory	Yes; DFG, 1997.						
	Fish Passage Barriers	No total, partial, temporal or unassessed barriers on Paso Robles Creek (CalFish PAD). PAD ID: 718835- Dam at Hartzell Dam on Santa Rita Creek, Tributary to Paso Robles Creek. Total Barrier. 14.86411 miles upstream. PAD ID: 736536- Culvert at Highway 46 on Sheepcamp Creek, tributary to Paso Robles Creek. Unknown Status						
	Designated Critical Habitat	Yes; Salinas River, Paso Robles Creek, Jack Creek, Sheepcamp Creek, Santa Rita Creek, Graves Creek, San Marcos Creek, and Summit Creek for Steelhead trout; South-Central California Coast Steelhead Trout Recovery Plan (50 CFR *226* - National Marine Fisheries Service - NOAA*);* Vernal Pool Fairy Shrimp (USFWS Critical Habitat Portal, viewed 2013)						
	Habitat Conservation Plans	Yes; North San Luis Obispo County Habitat Conservation Program, City of Paso/SLO County, multiple species, initially						

Lower Salinas - Paso Robles Creek Area Watershed

		San Joaquin kit fox *HCP general for County, not watershed specific*
	Other Environmental Resources	Salinas River, Paso Robles Groundwater Basin (SLO County IRWM, 2007)
	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, City of Atascadero (ptn), City of Paso Robles (ptn),Templeton, Town of San Miguel, Camp Roberts (ptn)
	% Urbanized	6.7% City of Paso; 6.4% City of Atascadero; 6.2% (0.7% commercial, 5.5%residential) Town of San Miguel; 3% Public Facility; 1.7% Residential Suburban; Less than 1% each Commercial Retail, Industrial, Recreational, Residential Multi-family, Residential Single Family, Office Professional and Commercial Service
	% Agricultural	62.5%; row crops, vineyards, orchards and rangeland 73%; row crops, vineyards, forage, and rangeland in the Town of San Miguel
	% Other	9.4%Rural Lands; 7.4% Residential Rural
	Planning Areas	Salinas River, Adelaida, El-Pomar/Estella Planning Areas
	Potential growth areas	Adelaida, Olsen Ranch, Chandler Ranch, Beechwood, Borkey, Union Road, Wellsona Area (City of Paso General Plan, 2011), San Miguel Urban Core, San Miguel Freeway Corridor (San Miguel Community Plan, 2013) Templeton.
	Facilities Present	Mission San Miguel, Rios Caledonia Adobe, County Works District 1, Camp Roberts, San Miguel Wastewater Treatment Plant, Paso Robles Waste Water Treatment Plant, Paso Robles Youth Correctional Facility, Mid State Fair Grounds, Atascadero Mutual Water Company facilities are found near the Salinas River, at the south end of this watershed.
	Commercial Uses	Industrial facilities - North River Road Pit operated by Viborg Construction; North River Road Pit operated by County of SLO; Mountain Springs Shale Pit operated by Viborg Construction; Templeton/Ormonde Sand and Gravel Pit operated by Borzini Sand and Gravel; Smith Sand Pit operated by Paul Viborg; Hartzell Red Rock #1 & Hartzell Red Rock #2 Sand and Gravel Pit operated by Hartzell Ranch; Santa Rita Stone Quarry operated by Santa Rita Quarry, tourism, agriculture: row crops, forage, vineyards, orchards, ranches and Paso Robles Airport; San Miguel commercial core, tourism- mission and wine related
	Demographics	
	Population	54,952 in watershed (US Census Blocks, 2010) 9,078 in the City of Atascadero (US Census Blocks, 2010) 29,524 in the City of Paso Robles (US Census Blocks, 2010) 7,674 in the community of Templeton (US Census, 2010)

Lower Salinas - Paso Robles Creek Area Watershed

		2,205 in the town of San Miguel (US Census Blocks, 2010)
	Race and Ethnicity	Watershed: 69.1% Caucasian; 25.1% Latino; 2% Mixed Race; 1.7% Asian; 1.2% African American; Less than 1% each American Indian and Pacific Islander (US Census Blocks, 2010) City of Atascadero: 83.2% Caucasian; 11.4% Latino; 0.4% Black; 0.5% American Indian and Alaska Native; 2% Asian; 2.2% Mixed Race (US Census Blocks, 2010) City of Paso Robles: 58.9% Caucasian; 34.6% Latino; 1.8% Black; 0.5% American Indian and Alaska Native; 1.8% Asian; 2% Mixed Race (US Census Blocks, 2010) Community of Templeton: 79.5% Caucasian; 15.3% Hispanic; 2.2% Mixed Race; 1.6% Asian; 0.7% Black or African American; 0.5% American Indian and Alaskan Native (US Census, 2010) Town of San Miguel: 46% Caucasian; 48.4% Latino; The remaining races each represent less than 6%, including African American, American Indian, Pacific Islander, and Asian. (US Census, 2010)
	Income	MHI $67,028 in watershed (interpolated from 9 US Census tracts, 2010) MHI $49,097 in San Miguel (US Census, 2010) MHI $57,927 in Paso Robles (US Census, 2010) MHI $70,820 in Templeton (US Census, 2010) MHI $68,502 in Atascadero (US Census, 2010)
	Disadvantaged Communities	Yes; San Miguel (DWR); 16.8% of individuals are below poverty level 6.0% of individuals are below poverty level in the watershed, not including San Miguel (US Census Tracts, 2010) (interpolated from 13 tracts spanning multiple watersheds) 8.7% of individuals are below poverty level in Atascadero (2007-2011 American Community Survey 5-Year Estimates) 10.2% of individuals are below poverty level in Paso Robles (2007-2011 American Community Survey 5-Year Estimates) 4.1% of individuals are below poverty level in Templeton (2007-2011 American Community Survey 5-Year Estimates)
	Water Resources	
	Water Management Entities	Atascadero Mutual Water Company, Templeton CSD, City of Paso Robles, San Miguel CSD, outlying areas served by individual wells

Lower Salinas - Paso Robles Creek Area Watershed

	Groundwater	Yes; Paso Robles Groundwater Basin Natural recharge in the basin is derived from infiltration of precipitation, seepage from streams, and return flow from irrigation and other uses (Ca. Dept. of Water Resources, 2003)
	Surface Water	No public reservoirs. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Board and no future plans exist to increase these demands beyond the current allocations. (Carollo, 2012)
	Imported Water	The cities of Atascadero, Paso Robles, and Templeton are signors of the Nacimiento Water Project, which allows them to draw supplemental water from Lake Nacimiento for their users (Carollo, 2012). Atascadero Mutual Water Company – 2,000 afy City of Paso Robles – 4,000 afy Templeton Community Services District – 250 afy
	Recycled/Desalinated Water	The City of Paso Robles has a wastewater recycling plant in planning phase, scheduled for completion in 2015 (City of El Paso de Robles, 2003). San Miguel CSD has a wastewater treatment plant that discharges recycled wastewater into the Paso Robles Groundwater Basin.
	Key Infiltration Zone	No complete study has been performed however the Salinas River/Highway 46 Recharge Area was identified by the SLO County Flood Control and Water Conservation District in 2008.
	Water Budget	Yes; Todd Engineers, 2013. Paso Robles Groundwater Basin Update. *Water budget figures are limited by unreported well data.*
	Water Uses	
	Beneficial Uses	*Paso Robles Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR),Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater habitat (WARM),Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM) *San Marcos Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR),Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm

		Freshwater habitat (WARM), and Commercial and Sport Fishing (COMM) *Salinas River (Nacimiento River-Santa Margarita Reservoir)* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PRO), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM),Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE) and Commercial and Sport Fishing (COMM). *Vineyard Canyon Creek* - Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater habitat (WARM), and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	Hot Springs	A geothermal pressure aquifer is located approximately 650 feet below the surface in the Paso Robles and Templeton areas. The water contained in this pressure aquifer is hot (122 degrees +), high in TDS and other minerals including boron. Improper construction of wells in the area may be contributing to contamination of the upper aquifer (CCRWQCB, 2002)
	Historical Resources	Rotta Winery (250 Winery Road, Templeton); York Mountain Winery (7505 York Mountain Rd, Templeton); San Marcos Cemetery (Chimney Rock Road & 24th Street West, Paso Robles); Willow Creek Cemetery (Vineyard & Dover Canyon Roads, Paso Robles); Estrella Adobe Church (Airport Rd, Paso Robles); Bethel Lutheran Church (295 Old County Road, Templeton); Geneseo School (moved in 2004); C.H. Phillips House (91 Main Street, Templeton); San Miguel Mission (775 Mission Street, San Miguel); Rios Caledonia Adobe (700 S. Mission Street, San Miguel) (PLN_DES_HISTORIC_POINTS GIS Layer) (PLN_DES_HISTORIC_POINTS GIS layer)
	Camp Roberts	Thirteen ponds and reservoirs (65 acres) which are either natural or artificially created for use as livestock ponds or flood control. A total of 120 aquatic species representing 64 families of organisms were recorded from rivers, ponds, and reservoirs on Camp Roberts. Eight species of fish, 44% of species native to Salinas River drainage, have been recorded

		at Camp Roberts from Nacimiento River. There are over 100 known archeological prehistoric and historic sites including the Nacimiento Ranch House. 23 animal species designated as California Special Concern Species by CDFW occur at Camp Roberts. There are 32 State-listed species on the special plants list. In process of partnering with Agricultural Land Conservancy to acquire 612-acre Willard property and 1,300-acre Manini property. A population of Tule Elk was established in the early 1980s.
	Jack Creek Reservoir	Over 250 acres of designated Open Space
	Los Padres National Forest	Ecosystems in Los Padres National Forest range from semi-desert in interior areas to redwood forest on the coast. Forest vegetation classified into two major types: chaparral and forested lands. Provides a diverse wildlife habitat with 23 threatened and endangered animals. Member of the California Condor Recovery Program and has been an active player in the reintroduction of California condors in the wild. The Forest has one endangered plant, two threatened plant species and 71 sensitive plant species. Management of riparian vegetation focuses on supporting fish and wildlife populations. There are over 870,000 acres of livestock grazing allotments in the Forest.
	Templeton Park, Duveneck Regional Park (Undeveloped)	County operated day-use recreation areas.
	Mission San Miguel de Archangel	Established in 1797, designated as State Historical Landmark No. 326.
	Rios Caledonia Adobe	Established between 1830-1846, adjacent to Mission San Miguel de Archangel, this site is considered one of the finest examples of early California architecture in the state. Contains preserves historic building, landscaped grounds, a gift shop and restrooms. Includes a 2.8 acre park and museum.
	San Miguel Park	Day-use recreation area operated by the County of San Luis Obispo.
	Wolf Property Natural Area	Operated by the County of San Luis Obispo.
	San Miguel Staging Area	Located on the Salinas River at the site of the former Camp Roberts swimming pool. Offers parking facilities for hiking and equestrian use along the Salinas River leading to Big Sandy Wildlife Area. Operated by the California Department of Fish and Game.
	Big Sandy Wildlife Area	850 acre grassland park that provides habitat to various species including California quail and wild boar. Provides season hunting and fishing activities to area residents and visitors. Portions of the riparian growth are virtually pristine; however much of the remaining area is highly disturbed.

Lower Salinas - Paso Robles Creek Area Watershed

		Habitat restoration activities are underway. The area is managed for hunting.
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for County, not watershed specific*

Watershed Codes

Calwater/DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3309.811406	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Graves Creek
3309.811407	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Asuncion
3309.811701	8	Paso Robles	1	Atascadero	309.81	Paso Robles Creek	San Francisco Canyon
3309.811702	8	Paso Robles	1	Atascadero	309.81	Paso Robles Creek	Upper Paso Robles Creek
3309.811703	8	Paso Robles	1	Atascadero	309.81	Paso Robles Creek	Sheepcamp Creek
3309.811704	8	Paso Robles	1	Atascadero	309.81	Paso Robles Creek	Cienega Creek
3309.811705	8	Paso Robles	1	Atascadero	309.81	Paso Robles Creek	Santa Rita Creek
3309.811706	8	Paso Robles	1	Atascadero	309.81	Paso Robles Creek	Lower Paso Robles Creek
3309.811707	8	Paso Robles	1	Atascadero	309.81	Paso Robles Creek	Summit Creek
3309.811801	8	Paso Robles	1	Atascadero	309.81	Templeton to Paso Robles	Bethel School
3309.811802	8	Paso Robles	1	Atascadero	309.81	Templeton to Paso Robles	Neals Spring
3309.811803	8	Paso Robles	1	Atascadero	309.81	Templeton to Paso Robles	Golden Hill
3309.811804	8	Paso Robles	1	Atascadero	309.81	Templeton to Paso Robles	Fern Canyon
3309.811805	8	Paso Robles	1	Atascadero	309.81	Templeton to Paso Robles	Mustard Creek
3309.811806	8	Paso Robles	1	Atascadero	309.81	Templeton to Paso Robles	Templeton
3309.811901	8	Paso Robles	1	Atascadero	309.81	Lower Nacimiento River	Lower San Marcos Creek
3309.811904	8	Paso Robles	1	Atascadero	309.81	Lower	Mahoney Canyon

						Nacimiento River	(majority)
3309.811907	8	Paso Robles	1	Atascadero	309.81	Lower Nacimiento River	McKay (ptn)
3309.811908	8	Paso Robles	1	Atascadero	309.81	Lower Nacimiento River	Upper San Marcos Creek
3309.812105	8	Paso Robles	1	Atascadero	309.81	Portugese Canyon	Lower Vineyard Canyon (ptn)

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

- In 1797, Franciscan padres built Mission San Miguel near the Paso Robles hot springs to take advantage of the waters curative powers. They constructed a crude abutment of logs around the edge of the main spring and an aqueduct that brought the water to the mission. Later, the main spring became the center of the town of Paso Robles. With the demise of the Mission, the Mexican government granted the original 10,519 hectare (25,':;1':;13 acres) of the Rancho de Paso Robles (Ranch of the Pass of the Oaks) to Pedro Narvaez in 1844. In 1857, with the decaying logs of the padres still at the spring, the Blackburn brothers and partner purchased the rancho for $8,000. A rough bathhouse was built over the main sulphur spring, a stagecoach station was established, and a small hotel was built to accommodate occasional travelers.
- Adelaida area first settled in the 1870's for immigrating European farmers. Included a general store, post office, school, church, and cemetery at its height
- In 1881 a portion of the Atlantic and Pacific Railway is established through San Miguel.
- In 1886, the Southern Pacific Railroad passed the small hotel in Paso Robles, and in 1889, the City of Paso Robles was incorporated. That same year, the Blackburns began construction of the Hotel El Paso de Robles near the main sulphur spring.
- Mining activity important: minerals extracted include cinnabar (mercury-bearing ore), quicksilver, and limestone.
- In 1889 San Miguel Fire District formed as a volunteer fire company
- San Miguel Community Services District formed (2000)
- On September 3, 1942 construction began on the Airfield, which was to be used as a Marine Corps Bomber Base. On April 8, 1943, the field was dedicated as Estrella Army Airfield to be used by the Army Air Corps. Estrella Army Airfield consisted of 1259 acres of land, two 4,700-foot long runways, an operations building and a small, three bay fire station.
- The Marine Corps Units occupied buildings to the west, across Airport Road in what is now the California Youth Authority. On August 29, 1947 the Federal Government transferred 1,057 acres to the County of San Luis Obispo to be used as a commercial airport, and 202 acres and buildings to the State of California to be used as a Correctional Facility.

- The County of San Luis Obispo extended runway 01/19 from 4,700 feet to 6,009 feet; installed high intensity lights; and built a large hangar, ten T-Hangars and a terminal building between 1949 and 1952. In 1952 commercial air service for San Luis Obispo County began, with Southwest Airways serving the area, became Pacific Airlines, and later yet merged into Hughes Air West. This service continued until 1974.
- On May 7, 1973, the County of San Luis Obispo sold the airport to the City of Paso Robles for $1.00. At that time the County was unable to derive enough income to support the cost of running the airport. The City subdivided unused land into 81 parcels for commercial development. The City formed an all-volunteer Fire, Crash and Rescue Department to serve the airport and the surrounding area. The City took over the water wells and the sewer treatment plant from the State to serve both the Airport and the Youth Authority. In 1973 there were four businesses employing 22 people on the airport. Today the Paso Robles Municipal Airport houses almost 40 businesses, employing over 700 people.

Watershed Heath by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Salinas River	Intermittent Perennial	Yes, Sodium and Chloride	Undetermined	Not assessed
Asuncion	Undetermined	Not assessed	Undetermined	Not assessed
Bethel School	Undetermined	Not assessed	Undetermined	Not assessed
Cienega Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Fern Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Graves Creek	Undetermined	Not assessed	Undetermined	**Upper**: Spring: 0.64 cfs. Summer: 0.28 cfs.
Lower Paso Robles Creek	Undetermined	Not assessed	Undetermined	Spring: 2.3 cfs. Summer: 0.7 cfs
Lower San Marcos Creek	Undetermined	Not assessed	Undetermined	Not assessed
Mustard Creek	Undetermined	Not assessed	Undetermined	Not assessed
Neals Spring	Undetermined	Not assessed	Undetermined	Not assessed
San Francisco Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Santa Rita Creek	Undetermined	Not assessed	Undetermined	Spring: 1.22 cfs. Summer: 0.43 cfs.
Sheepcamp Creek	Undetermined	Not assessed	Undetermined	Not assessed
Summit Creek	Undetermined	Not assessed	Undetermined	Not assessed
Templeton	Undetermined	Not assessed	Undetermined	Not assessed
Upper Paso Robles Creek	Undetermined	Not assessed	Undetermined	Not assessed

Upper San Marcos Creek	Undetermined	Not assessed	Undetermined	Not assessed
McKay	Undetermined	Not assessed	Undetermined	Not assessed
Mahoney Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Lower Vineyard Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Salinas River	Undetermined	Yes, for Sodium and Chloride	Undetermined	Not assessed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield (Master Water Report)	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF	Physical Limitations, Water Rights, Water Quality Issues(Carollo, 2012).	Yes; see description below.	None (CCRWQCB, 2011

Groundwater Quality Description:

Paso Robles Groundwater Basin: The predominant cations are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West, 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissoved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study, (Fugro West 2001b), 23 of 74 samples collected exceeded one or more drinking water standards. The maximum contaminant level (MCL) for nitrate was exceeded in 4 samples (Fugro West, 2001b). Water quality trends indicate an increasing concentration of TDS and chloride in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012).

Another major problem is the unpredictable occurrence of hydrogen sulfide in the ground water (DWR, 1981).

Increasing amounts of total dissolved solids and chlorides near San Miguel. Increasing nitrates in the Paso Robles Formation in the area south of San Miguel. High nitrates and arsenic, presence of gross alpha emitters (SLO County Public Works Master Water Report, 2012).

Lower Salinas - Paso Robles Creek Area Watershed

Primary Issues

Issue	*Potential Causes*	*Referenced from*
significant water level declines	range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural "ranchette") users	Carollo, 2012
Groundwater Quality	high concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012
Salinas River 303(d) listed for sodium, chloride		Carollo, 2012
Steelhead passage	Several tributaries and the Salinas are designated critical habitat which must be considered in planning water uses.	50 CFR *226* - National Marine Fisheries Service - NOAA

Groundwater: Paso Robles Groundwater Basin

According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin.The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

Lower Salinas - Paso Robles Creek Area Watershed

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Significant Studies in Progress:

Regional Board Salt Balance Study – define the need and methods of salt reduction

Upper Salinas – Santa Margarita Area Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Salinas 9	Santa Margarita WPA 12, Atascadero/ Templeton WPA 13	82,156 acres	Salinas River to Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles; Atascadero sub-Basin; Rinconada Valley	County of San Luis Obispo, City of Atascadero, Town of Santa Margarita, Los Padres National Forest

Description:

The Upper Salinas- Santa Margarita Area Watershed is located in northern San Luis Obispo County and includes a portion of the Salinas River and adjacent tributaries. The drainage rises to a maximum elevation of approximately 2,800 feet above mean sea level with steep topography categorizing much of the western portion of the watershed. The watershed contains two major drainages; Atascadero Creek and Parole Canyon. The watershed contains a mix of urban and rural residential land uses as well as agricultural land uses. A portion of the Los Padres National Forest is also contained within the watershed along the western boundary. The City of Atascadero is located at the northern end of the watershed boundary and the community of Santa Margarita is located within the central and southern portions of the watershed. Other land uses include two quarries, Atascadero Lake, and a wastewater treatment plant. Water supply for the watershed area is dominated by wells, including those used by the Atascadero Mutual Water Company to supply urban residents and commercial uses.

Existing Watershed Plans:

Salinas River Watershed Action Plan

Upper Salinas – Santa Margarita Area Watershed

Characteristics:

	Physical Setting	
	Rainfall	Average annual: 21-37 inches (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990- 2012): 52°-92°F Winter Range (December 1990-2012): 32°-61°F (Paso Robles (*not in watershed*), NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Rincon Creek is composed of flat highly infiltrative Quaternary material. Santa Margarita Creek and Hale Creek sub-watersheds have steep pre-Quaternary non-infiltrative headwaters with steep moderately infiltrative early to mid-Tertiary valleys. Trout Creek has steep pre-Quaternary non-infiltrative headwaters with flat highly infiltrative Quaternary valleys. Calf Canyon, Moreno Creek and Pilitas Creek have steep pre-Quaternary non-infiltrative headwaters. Paloma Creek sub-watershed has moderately infiltrative early to mid-Tertiary headwaters with flat Quaternary highly infiltrative valleys (Bell, pers. comm., 2013). Water Bearing Formations. The principal water-bearing unit is Quaternary age alluvium (Carollo, 2012) The Middle Salinas-Atascadero Watershed is more complex than northern San Luis Obispo Counties other watersheds because it is dissected by the Rinconada Fault. Atascadero draws water from a sub-basin, a pocket located on the western edge of the main basin (just 3 percent of the basin) that is smaller, narrower and replenishes water far more easily with rainfall. The Rinconada Fault separates the two. The local public water utility doesn't need a treatment plant because the natural geology along the Salinas River in Atascadero allows it to treat the water by filtering it through a sandy layer adjacent to the Salinas River (Tribune, 2013). The Santa Margarita Formation in this watershed is present as Miocene aged, nearly white, coarse, arkosic sandstones which are interbedded with small amounts of mudstone, siltstone, diatomite, and conglomerate. The sandstones are commonly massively cross-bedded, indicative of a high energy, shallow marine bottom depositional environment. Minerals indicate a granitic origin for the sands, while the pebbles in the conglomerates appear to have been reworked from older conglomerates. Some beds are tuffaceous, and some diatomaceous beds altered to chert by redeposition of silica. Significant in environmental interpretation of the formation are the thick biostromes, consisting of masses of pectin, oyster shells, and broken shell debris. Such masses appear to have been storm constructed masses.

		They imply shallow water, high energy conditions, as supported by thick shells of many fossils, deposited in a structural trough between the Rinconada and Nacimiento fault zones, reaching 2,000 ft thick northeast of Santa Margarita but 200 feet west of Atascadero (Chipping, 1987). Southern Salinas Valley contains extensive outcroppings of Monterey Formation. The Hames member forms extensive outcrops between Atascadero and Santa Margarita. The Monterey Formation is dominated by thin, siliceous shales, and diatomaceous beds, which contains few, thin phosphatic beds. Sandstones are usually calcareous, well-cemented, and laced with small calcite veins. Some beds, like Graves Creek near Atascadero for example, were buried while still in a slurry-like state, and injected into overlying beds as sandstone dikes. The calcareous nature of the Monterey Formation is due to the high foraminifera content (Chipping, 1987). The Salinas Valley near Santa Margarita is bounded by the Sur-Nacimiento Fault on the east and Rinconada Fault to the west. The Sur-Nacimiento fault marks the boundary between the old oceanic crust of the Franciscan mélange to the west, and the Salinian continental crust made up of granite to the east. The Salinan granite basement extends to the San Andreas Fault to the east. The Salinan Block represents a slice of continental granitic crust sandwiched between two oceanic crustal plates of the younger Franciscan on the west, and the older Franciscan of the San Joaquin Valley to the east. The Rinconada Fault is a branch off the SAF and continues N until it goes offshore N of Monterey. It is a right lateral wrench similar to the San Andreas and forms the mountains on the westside of the Salinas Valley. The fault passes through Paso Robles and is the source of the mineral hot springs in town (Chipping, 1987).
	Hydrology	
	Stream Gage	Yes; USGS 11145500 (Salinas River near CA-58); USGS 11145000 (Salinas River at Las Pilitas Road); USGS 11144600 (Salinas River near Santa Margarita Lake) (USGS, viewed August 2013)
	Hydrology Models	Yes; Klinchuch. 2012. Groundwater model to analyze the sustainability of the Atascadero Sub-basin; Montgomery Watson, 1997, Monterey County Water Resource Agency's Salinas Valley Integrated Groundwater and Surface Water Model Update, Final Report; Todd Engineers, Oct 2013, Paso Robles Groundwater Basin Model.
	Peak Flow	16,600 cfs (USGS, viewed August 2013).
	Base Flow	7.5 cfs (USGS, viewed August 2013).

	Flood reports	None
	Flood Control Structures	Bridges: 1 over Rinconada Creek on Pozo Road; 2 over Salinas River on Las Pilitas Road; 3 over Las Pilitas Creek on Las Pilitas Road; 5 over Santa Margarita Creek on El Camino Real, Walnut Avenue, Norte Road, Linden Ave and Tassajara Creek Road; 4 over Yerba Buena Creek on H Street, J Street, I Street and Encina Avenue; 1 over Tassajara Creek on Tassajara Creek Road (PWD Bridges GIS layer)
	Areas of Heightened Flood Risk	Creeks in Atascadero overflow banks and cause local flooding • Major flooding problems in Santa Margarita are caused by inadequate culverts/ bridges, and inadequate channel capacity in Yerba Buena Creek, where water overtops the banks and floods adjacent low topographic areas. • Santa Margarita has a serious lack of sufficient drainage ditches, culverts, and storm drains. These facilities are often under maintained and filled with sediment or debris, which prevents the drainage system from properly conveying urban runoff to Yerba Buena and Santa Margarita Creeks. • Proposed Solutions (2009): Construction of a levee and major retention basins to address frequently recurring flooding problems • Proposed Improvements (2009): The local CSA 23 advisory group has been active in mobilizing community support for the projects and pursuing an easement for the levee and retention basins from the owners of adjacent Santa Margarita Ranch (SLO County Flood Control and Water Conservation District, 2009).
	Biological Setting	
	Vegetation Cover	Primarily oak woodland, consisting mainly of coast live oak, blue oak, intermittent valley oak, chamise chaparral some buckbrush chaparral, non-native annual grassland, coastal scrub, foothill pine woodland, mixed evergreen forest around Cuesta grade, and cropland. (SLO County vegetation shapefile, 1990) Riparian vegetation is present along creeks and the Salinas river, ranging from willow scrub to multi-layer mature riparian woodland with cottonwood, sycamore, black walnut, and willow. (Althouse and Meade, 2013). Forest Service Calveg data from 2002 for this watershed also describe chamise chaparral, mixed chaparral, sage scrub, and woodlands. Woodland types include blue oak woodland, coast live oak woodland, foothill woodland with mixed oak and foothill pine, mixed hardwoods, and coulter pine. Riparian woodlands with sycamore, valley oak, and mixed hardwood are also noted. Willow scrub is mapped along some drainages. This shapefile does not have complete coverage in this watershed. (Calveg R5 Zone 6, EvegTile42_97_02, 2007, based on 2002 aerials) *Data limited by age and incomplete coverage of shapefiles*

Invasive Species	Star thistle, tocolote, spotted knapweed, Blue gum/Eucalyptus (Althouse and Meade, 2005) *Data limited to observations, not complete inventory*
Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Species	Status	ATASCADERO	LOPEZ MTN	SAN LUIS OBISPO	SANTA MARGARITA	SANTA MARGARITA LAKE	TEMPLETON	WILSON CORNER
Animals								
American badger	SSC				x			
Atascadero June beetle	SA	x					x	
California linderiella	SA				x			
California red-legged frog	FT	x	x		x			
Coast Range newt	SSC		x	x				
ferruginous hawk	SA (Wintering)		x		x			
foothill yellow-legged frog	SSC				x			
golden eagle	FP	x						
grasshopper sparrow	SSC (Nesting)				x			
loggerhead shrike	SSC (Nesting)		x					
merlin	SA (Wintering)		x					
pallid bat	SSC	x						
prairie falcon	SA (Nesting)		x	x	x	X		x
purple martin	SSC (Nesting)	x	x					
San Luis Obispo pyrg	SA			x				
silvery legless lizard	SSC		x					
Townsend's big-eared bat	SSC				x			
western pond turtle	SSC	x	x	x	x			
western spadefoot	SSC				x			x
white-tailed kite	FP		x		x			

Species	Status	ATASCADERO	LOPEZ MTN	SAN LUIS OBISPO	SANTA MARGARITA	SANTA MARGARITA LAKE	TEMPLETON	WILSON CORNER
Plants								
Brewer's spineflower	CRPR 1B.3	x		x				
Cambria morning-glory	CRPR 4.2		x	x				
caper-fruited tropidocarpum	CRPR 1B.1		x					
Cuesta Pass checkerbloom	SR	x		x				
Cuesta Ridge thistle	CRPR 1B.2	x		x				
dwarf soaproot	CRPR 1B.2			x				
Eastwood's larkspur	CRPR 1B.2	x					x	
Hardham's evening-primrose	CRPR 1B.2				x			
hooked popcornflower	CRPR 1B.2	x		x				
Hoover's bent grass	CRPR 1B.2		x			x		
La Panza mariposa-lily	CRPR 1B.3				x	x		
mesa horkelia	CRPR 1B.1	x		x			x	
Miles' milk-vetch	CRPR 1B.2	x			x			
most beautiful jewel-flower	CRPR 1B.2	x						
pale-yellow layia	CRPR 1B.1				x			
Palmer's monardella	CRPR 1B.2	x		x		x		
Pecho manzanita	CRPR 1B.2		x					
round-leaved filaree	CRPR 1B.1	x			x		x	
San Benito fritillary	CRPR 1B.2			x				
San Luis mariposa-lily	CRPR 1B.2	x		x				
San Luis Obispo County lupine	CRPR 1B.2		x					
San Luis Obispo owl's-clover	CRPR 1B.2		x					
San Luis Obispo sedge	CRPR 1B.2	x		x		x		
Santa Lucia manzanita	CRPR 1B.2		x	x				
Santa Margarita manzanita	CRPR 1B.2	x	x	x				
shining navarretia	CRPR 1B.2				x			
straight-awned spineflower	CRPR 1B.3	x	x		x			
yellow-flowered eriastrum	CRPR 1B.2	x			x	x	x	X

Upper Salinas – Santa Margarita Area Watershed

	Steelhead Streams	Yes; Atascadero (Hale) Creek (FR 50) Atascadero (Hale) Creek, Santa Margarita Creek, Tassajara Creek, Salinas River (US-LT RCD, 2002)
	Stream Habitat Inventory	Yes; DFG, 2005
	Fish Passage Barriers	PAD ID: 707003– Bedrock waterfall on Atascadero Creek. Total Barrier. 22.565639 miles upstream. PAD ID: 707244- Utility crossing on Atascadero Creek at Curbail Avenue. Temporal Barrier. 25.51314 miles upstream. PAD ID: 719388- Dam at Atascadero Park on unnamed tributary to Atascadero. Unknown Status.PAD ID: 731745- Road crossing at Highway 41 on unnamed tributary to Atascadero Creek. Unknown Status. PAD ID: 732138- Road crossing at Highway 41 on unnamed tributary to Atascadero Creek. Unknown Status. PAD ID: 707246- Culvert under Highway 101 on Santa Margarita Creek. Total Barrier. 5.52855 miles upstream.PAD ID: 712052- Road Crossing at El Camino Real Bridge on Santa Margarita Creek. Partial Barrier.69.42864 miles upstream. PAD ID: 707245- Culvert on Santa Margarita Creek. Temporal Barrier. 7.00901 miles upstream.
	Designated Critical Habitat	Yes; Atascadero (Hale) Creek for Steelhead Trout (NMFS CFR 50 226) Steelhead Trout: Tassajara (trout) creek, Santa Margarita Creek, Salinas River (US Fish and Wildlife – Critical Habitat Mapper) California Red-Legged Frog (USFWS Critical Habitat Portal, viewed 2013)
	Habitat Conservation Plans	Yes; North San Luis Obispo County Habitat Conservation Program – Multiple species, initially San Joaquin kit fox. *HCP general for North County, not watershed specific*
	Other Environmental Resources	Salinas River, Paso Robles Groundwater Basin, Salinas Reservoir/Santa Margarita Lake, Los Padres National Forest, Santa Lucia Wilderness, Cuesta Ridge Botanical Area, Rinconada Mine Botanical Area (SLO County Flood Control and Water Conservation District, 2007)
	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, City of Atascadero, Town of Santa Margarita
	% Urbanized	9.6% in City of Atascadero, 0.05% Commercial (majority in Santa Margarita), 5% residential (majority Santa Margarita and South Atascadero: non-city)
	% Agricultural	42% rangeland, small scale vineyard and crop production.
	% Other	12.6% open space (Los Padres national Forest), 0.04% Public Facilities, 0.2% recreation, 3% rural lands
	Planning Areas	Salinas River Planning Area

	Potential growth areas	Eagle Ranch (South Atascadero); Santa Margarita Ranch; City of Atascadero Urban Core, South Atascadero
	Facilities Present	Atascadero Wastewater Treatment Plant discharges to the Salinas River; Atascadero Lake; Los Padres National Forest, The Garden Farms Water District
	Commercial Uses	City of Atascadero – Urban Core, Santa Margarita Ranch, hobby vineyards, Livestock and Ag – east Salinas River, Kaiser Quarry, Rocky Canyon Quarry (Union Asphalt), Santa Margarita Quarry (Hansen Aggregates), various industrial facilities, agricultural service provides, residential service providers, commercial districts, restaurants, wine related tourism
	Demographics	
	Population	24,098 in watershed (U.S. Census Block, 2010). 19,333 in Atascadero (US Census Blocks, 2010) 386 in Garden Farms (US Census Blocks, 2010) 1,259 in Santa Margarita (US Census Blocks, 2010)
	Race and Ethnicity	Watershed: Caucasians representing 76%, Latinos representing 16.3%, Mixed-race individuals representing 2.4%, Asians representing 2.2%, African Americans representing 2.2% of the total population in the watershed. The remaining races include Native American, Pacific Islander, and other. Atascadero: 74% Caucasian; 18% Latino; 2.5% Mixed Race; 2.4% Asian (US Census Blocks, 2010) Garden Farms: 87.3% Caucasian; 10.4% Hispanic or Latino; 1.3% Asian (US Census, 2010) Santa Margarita: 76.5% Caucasian; 16.4% Hispanic or Latino; 3.2% Mixed Race; 2.2% Asian; 1.2% American Indian and Alaska Native (US Census, 2010)
	Income	MHI $60,676 for watershed (U.S. Census Tracts, 2010). MHI $68,502 in Atascadero (US Census, 2010) MHI $49,032 in Santa Margarita (US Census, 2010)
	Disadvantaged Communities	No; 7% of individuals are below poverty level in the watershed (U.S. Census Tracts, 2010). 8.7% of individuals are below poverty level in Atascadero (US Census, 2010) 16.7% of individuals are below poverty level in Garden Farms (2007-2011 American Community Survey 5-Year Estimates) 18.9% of individuals are below poverty level in Santa Margarita (2007-2011 American Community Survey 5-Year Estimates)
	Water Resources	
	Water Management Entities	Atascadero Mutual Water Company, County Waterworks District No. 6

		County Waterworks District No. 6: three wells located in the Paso Robles groundwater basin that provide water to residents of Santa Margarita Atascadero Mutual Water Company – Salinas River wells located in the Atascadero Sub-basin that provide water to the City of Atascadero and surrounding areas.
	Groundwater	Yes; Paso Robles; Atascadero sub-Basin; Rinconada Valley
	Surface Water	No public reservoirs. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Board and no future plans exist to increase these demands beyond the current allocations. (Carollo, 2012)
	Imported Water	Yes; Nacimiento Pipeline (Atascadero Mutual Water Company)
	Recycled/Desalinated Water	Yes; The City of Atascadero uses reclaimed water from the Wastewater Treatment Plant for use at Heilman Regional Park and Golf Course, as well as recharge for Paso Robles Groundwater Basin.
	Key Infiltration Areas	No comprehensive study has been completed to date. The main source of recharge in the alluvium is the Salinas River. Recharge to the Paso Robles Formation occurs from the overlying Salinas River alluvium as well as from overlying channel deposits of the Santa Margarita, Atascadero, Graves, and Paso Robles Creeks (Carollo, 2012)
	Water Budget	Yes; Todd Engineers, 2013, Paso Robles Groundwater Basin Model Update *Water budget limited by lacking well data*
	Water Uses	
	Beneficial Uses	*Atascadero Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), and/or Early Development (SPWN). *Atascadero Lake* - Municipal and Domestic Supply (MUN), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Freshwater habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Navigation (NAV), and/or Early Development (SPWN). *Salinas River (Nacimiento River-Santa Margarita Reservoir)* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PRO), Ground Water Recharge (GWR),

		Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Cold Fresh Water Habitat (COLD), Warm Freshwater habitat (WARM), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Threatened, or Endangered Species (RARE) and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
	Other Unique Characteristics	
	Historical Resources	Santa Margarita de Cortona (22515 H Street, Santa Margarita) (PLN_DES_HISTORIC_POINTS GIS layer)
	Los Padres National Monument	Ecosystems in Los Padres National Forest range from semi-desert in interior areas to redwood forest on the coast. Forest vegetation classified into two major types: chaparral and forested lands. Provides a diverse wildlife habitat with 23 threatened and endangered animals. Member of the California Condor Recovery Program, and has been an active player in the reintroduction of California condors in the wild. The Forest has one endangered plant, two threatened plant species and 71 sensitive plant species. Management of riparian vegetation focuses on supporting fish and wildlife populations. There are over 870,000 acres of livestock grazing allotments in the Forest.
	Heilman Regional Park, Santa Margarita Community Park and Chalk Mountain Golf Course	Group day-use facilities owned and managed by the County of San Luis Obispo.
	Atascadero Lake Park	Man-made lake managed by the City of Atascadero. There is a walking path that follows the edge of the lake for a stroll, jog or bike ride lakeside. The park also has a playground, paddle/kayak boats, workout stations, restroom facilities, large and small barbecue areas, horseshoe pits, sand volleyball court and the Charles Paddock Zoo.
	Stadium Park	During the 1920's, Stadium Park was a gathering place for community events, concerts, and theater. Performances were held on a big stage under an Oak tree. That stage was later moved to where the Atascadero Lake Pavilion now stands. Besides being a beautiful park, it is a natural amphitheater with gently sloping hills leading to the basin. Acoustics are ideal just as nature made them.
	Sunken Gardens	Inspired by “The Grand Basin” at the 1904 St. Louis World’s Fair, Atascadero founder E.G. Lewis envisioned a formal Sunken Garden to adorn the civic center in his new colony. Restored in 2005 as originally designed with walkways crossing the length and width of the gardens and meeting at a central fountain designed by architect Walter D. Bliss of the San Francisco firm of Bliss and Faville.
	Rinconada Mine Botanical Area	Significant as an outstanding representative foothill woodland community with a wide diversity of species. *Monardella palmeri*, a plant on the California Native Plant Society’s list of rare and

		endangered species is known to this area
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for county, not watershed specific*

Watershed Codes

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3309.811303	8	Paso Robles	1	Atascadero	309.81	Parole Canyon	Pilitas Creek
3309.811304	8	Paso Robles	1	Atascadero	309.81	Parole Canyon	Rincon Creek
3309.811306	8	Paso Robles	1	Atascadero	309.81	Parole Canyon	Moreno Creek
3309.811401	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Santa Margarita Creek
3309.811402	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Calf Canyon
3309.811403	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Paloma Creek
3309.811404	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Hale Creek
3309.811405	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Henry
3309.811408	8	Paso Robles	1	Atascadero	309.81	Atascadero Lake	Trout Creek

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Upper Salinas – Santa Margarita Area Watershed

Major Changes in the Watershed

- Since late 1700's Salinas River Valley used for agriculture. After Spanish missionary priests established the mission at San Luis Obispo, they built Santa Margarita de Cortona Asistencia in 1817 to provide crops and livestock.

Atascadero

- First building in the area in 1812. Adobe that served as the southern grazing outpost for Mission San Miguel Portions of the adobe walls stood until late 1900's near Traffic Way.
- 1876 – A. F. Benton purchased the Eagle Rancho, near the headwaters of Atascadero Creek. Uses the land the raise hogs, but as many encounters with grizzly bears that make ranching difficult, but attracts big game hunters to the area (Storke, 1891).
- During 19th century cattle ran in large tracts that had been Mexican land grants. Toward the end of the century, J. H. Henry consolidated a number of tracts into the 23,770 acre Atascadero Ranch.
- During the early 20th century, U.S. Army used the central plains of the ranch for annual encampments and maneuvers and at one time considered the acquisition of the ranch for permanent military camp.
- In 1913, Edward Gardner "E. G. Lewis" selected the Atascadero Ranch as the ideal location for a model colony. Lewis purposely chose a location halfway between major urban center of the state on both a railway and state highway.
- Lewis subdivided the entire 38 square miles, built 100 miles of roads, a water system of tanks, wells and mains, nearly 3,000 acres of orchards, parks, the Sunken Gardens and public buildings.
- A twenty-mile road through the Santa Lucia Mountains connecting the Colony to the 1,000 acre Atascadero Beach properties near Morro Bay which had schools, a community center, hospital and hotel.
- Two important factors that stimulated growth in the 1950's have also significantly affected design and demographics of the community: bisection of the City in 1954 by Highway 101, and the siting of the Atascadero State Hospital on the edge of the community in 1956.
- 2006 – Severely eroded bank on south side of Atascadero Creek repaired. Rock slope protection installed along the bank and heavily vegetated with native riparian species.

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Salinas River	Undetermined	Yes; Sodium and Chloride	Undetermined	Not assessed

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
Atascadero Creek (Hale)	Perennial	Yes on 303d list for Chloride, E. coli, Fecal Coliform, Low Dissolved Oxygen, and Sodium. TMDL estimated date of completion 2021.	NP: Agriculture, grazing-related, natural sources, resource extraction, petroleum activities, transient encampments MP: None defined as such on 303d list	**Lower**: Spring: 0.99 cfs. Summer: 0.37 cfs.
Paloma Creek	Undetermined	Not assessed	Undetermined	Not assessed
Santa Margarita Creek	Undetermined	Not assessed	Undetermined	**Upper**: Spring: 0.81 cfs. Summer: 0.32 cfs.
Calf Canyon Creek	Undetermined	Not assessed	Undetermined	**Upper**: Spring: 0.49 cfs. Summer: 0.24 cfs.
Moreno Creek	Undetermined	Not assessed	Undetermined	Spring: 0.53 cfs. Summer: 0.24 cfs.
Trout Creek	Undetermined	Not assessed	Undetermined	**Upper**: Spring: 0.63 cfs. Summer: 0.27 cfs.
Rincon Creek	Undetermined	Not assessed	Undetermined	Not assessed
Pilitas Creek	Undetermined	Not assessed	Undetermined	Spring: 0.65 cfs. Summer: 0.28 cfs.

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County RCS, 2011)	Physical limitations, water rights and water quality issues (Master Water Report).	Yes; see description below.	None (CCRWQCB, 2011)
Atascadero	None (Carollo, 2012)	Water rights and physical	The 2008 Water Quality	None (CCRWQCB,

		limitations (SLO County WMP, 2012)	Report for both Templeton CSD and Atascadero MWC found that none of the tested regulated and secondary substances in water samples exceeded their MCL values (Carollo, 2012)	2011)
Rinconada	None (Carollo, 2012)	Physical Limitations (SLO County WMP, 2012)	None (Carollo, 2012)	None (CCRWQCB, 2011)

Groundwater Quality Description:

Paso Robles Groundwater Basin: Based on Todd monitoring report (2007), the Basin was not at the safe yield although some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggests groundwater pumping was approaching the safe yield of the Basin, which led to the recommendation to do a groundwater management plan. The Resource Capacity Study prepared by the San Luis Obispo County Planning Department in November 2010 states that the Basin is near or at perennial yield, and contains land use and water use monitoring and conservation recommendations within the authority of the County and District to help ensure the sustainability of the Basin into the future (Paso Robles Groundwater Basin – Groundwater Advisory Committee, 2011).

The predominant cations are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West, 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissoved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study, (Fugro West 2001b), 23 of 74 samples collected exceeded one or more drinking water standards. The maximum contaminant level (MCL) for nitrate was exceeded in 4 samples (Fugro West, 2001b). Water quality trends indicate an increasing concentration of TDS and chloride in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012).

Salinas River recharge typically contains calcium and magnesium bicarbonate. Santa Margarita Creek water contains magnesium-calcium-bicarbonate. Atascadero and Paso Robles Creeks have calcium bicarbonate rich waters. Increasing Total Dissolved Solids and chlorine, physical limitations (Carollo, 2012).

Atascadero sub-basin: In terms of physical limitations, Todd (2009) estimated the gross groundwater pumping in the sub-basin during 2006 to be 15,545 AF, which is 95 percent of the sub-basin perennial yield of 16,400 AFY. Ongoing studies may revise the estimated outflow from the sub-basin. According to Fugro (2010), whereas total groundwater in storage in the main part of the Paso Robles Groundwater Basin is predominantly in the Paso Robles Formation,

the Salinas River alluvium in the Atascadero Groundwater Sub-basin accounts for a significant percentage of the total groundwater storage in the sub-basin. Pumping from the alluvium should be accounted for separately from pumping from the Paso Robles Formation.

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural "ranchette") users	Carollo, 2012
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012
Limited Groundwater Basin information (Rinconada basin)		Carollo, 2012
Atascadero (Hale) Creek 303(d) listed for chloride, Escherichia coli (E. coli), fecal coliform, low dissolved oxygen, sodium	Agriculture, grazing related and natural sources, resource extraction petroleum activities, transient encampments	Carollo, 2012
Steelhead passage	Several tributaries and the Salinas are designated critical habitat which must be considered in planning water use.	*50 CFR 226 - National Marine Fisheries Service - NOAA*

Groundwater: Paso Robles Groundwater Basin

According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Significant Studies in Progress:

Soda Lake Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Carrizo Plain 11	Carrizo Plain WPA 10	141,876 total acres with 136,015 acres within San Luis Obispo County	Soda Lake	Carrizo Plain, Big Spring Area (ptn)	County of San Luis Obispo, California Valley, Bureau of Land Management

Photo: Althouse and Meade

Existing Watershed Plans:

No existing plans to date

Description:

The Soda Lake Watershed lies in the eastern portion of San Luis Obispo's North County region and includes the northern portion of the Carrizo National Monument. The total watershed area is 141,876 acres with a majority of the acreage located within San Luis Obispo County (136,015 acres). The remaining acreage is located within Kern County to the east. The watershed is bounded by Temblor Range to the east, Caliente Range and San Juan Hills to the west and drains entirely into Soda Lake. The majority of Soda Lake is contained within the watershed, with the other portion contained within the Black Sulphur Springs watershed. The Watershed contains two major drainages: Panorama Hills and West of Soda Lake. The highest elevation in the watershed is approximately 4,100 feet and the lowest elevation is about 1,920 feet. The watershed, combined with the adjacent Black Sulphur Spring watershed, is an alkali closed basin with no outflow beyond Soda Lake. While the lake once contained higher levels of water and supported recreation, recently the Bureau of Land Management prohibits such uses. The watershed is transected by San Andreas Fault. The major groundwater basin underlying the watershed is the Carrizo Plain basin which is recharged from percolation of stream flow and infiltration of precipitation. The dominant land uses are grazing and solar farms.

Soda Lake Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 7-14 in. (NRCS shapefile, 2010).
	Air Temperature	Summer Range (August 1996-2012): 64-88°F Winter Range (December 1996-2012): 38-52°F (Branch Mountain, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Carrizo Plain sub-watershed is flat highly infiltrative Quaternary material. Painted Rock, Goodwin Ranch and San Diego Creek are moderate steep moderately infiltrative early to mid-Tertiary headwaters and are flat and highly infiltrative Quaternary inland (Bell, pers. comm., 2013). Groundwater is found in alluvium and the Paso Robles and Morales Formations. Upper Pleistocene to Holocene alluvium consists of unconsolidated to loosely consolidated sands, gravels, and silts with a few beds of compacted clays. Paso Robles Formation. The Pleistocene age Paso Robles Formation consists of poorly sorted, mostly loosely consolidated gravels, sands, and silts. The combined thickness of these deposits is more than 3,000 feet in the eastern portion of the basin along the San Andreas fault and decreases toward the west. The Upper Pliocene Morales Formation consists of sands, gravels, and silts, which generally are more stratified and compacted than in the overlying Paso Robles Formation (Chipping, 1987).
	Hydrology	
	Stream Gage	None
	Hydrology Models	Yes; North Coast Engineering. 2008. Preliminary investigation for the California Valley solar ranch, San Luis Obispo County, CA. Taney Engineering. 2009. Hydrology Report of Topaz Solar Facility.
	Peak Flow	No data available
	Base Flow	No data available
	Flood Reports	None
	Flood Control Structures	Bridges: 1 over Carrizo Drain on Soda Lake Road (PWD Bridges GIS Layer)
	Areas of Flood Risk	No data available
	Biological Setting	
	Vegetation Cover	Primarily annual grassland with alkali desert scrub, juniper woodland, semi-desert chaparral, sagebrush, saltbush, barren dry salt flats, as well

	as mixed chaparral consisting of mainly narrowleaf golden bush (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile* CNPS recently (2013) completed a vegetation survey of the Carrizo Plain National Monument; a portion of the Soda Lake watershed was included in the survey. Mapped vegetation characterized stands to the alliance level. Desert scrub, alkaline/scrub, coastal scrub, chaparral, woodlands, saline and alkali marshes, grasslands and herblands, and arroyo wash alliances were all represented. Grasslands are mapped along the western hills and lower portions of the eastern hills; alkali, desert, and coastal scrub are common on upper eastern hills. Goldfield-plantain-fescue fields and other wildflower alliances are present along the basin floor. Alkali wetlands and marsh vegetation are patchy in near Soda Lake. Many additional alliances are mapped in small patches. The CNPS inventory provides high-resolution vegetation data at fine scale for the south part of this watershed. Private lands have not been inventoried. Vernal pools are present on the plain floor, and become less alkaline in the north part of the watershed. Annual grasslands and recently farmed croplands are common in the north part of the watershed (Althouse and Meade, 2013).
Invasive Species	Slim oat (*Avena barbata*), Common wild oat (*Avena fatua*), Black Mustard (*Brassica nigra*), Bromegrass (*Bromus Diandrus*), Red brome (*Bromus rubens*), Italian thistle (*Carduus pycnocephalus*), Spear thistle (*Cirsium vulgare*), Cut-leaved cranesbill (*Geranium dissectum*), Farmer's foxtail (*Hordeum marinum*), Italian ryegrass (*Lolium multiflorum*), Foxtail fescue (*Vulpia myuros*) Cheat grass (*Bromus diandrus*), Tamarisk (*Tamarix* spp.), Tree of heaven (*Ailanthus altissima*), Russian thistle (*Salsola tragus*), Perennial pepperweed (*Lepidium latifolium*), Barbed goat grass (*Aegilops triuncialis*), Skeleton weed (*Chondrilla juncea*), Russian knapweed (*Acroptilon repens*), and Yellowstar thistle (*Centaurea solstitialis*) (Los Padres Forest Watch, 2011). Several of these species have limited distribution within the watershed and a coordinated effort with landowners could make significant contribution to control of spread. Many of these species were identified and mapped during biological surveys for Topaz Solar Farm, and through personal communications with the County Department of Agriculture. These occurrences pre-date the solar projects (Althouse and Meade, 2013). *Data limited to observations, not complete inventory*
Special Status Wildlife and Plants	Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant

rank (CNDDB, viewed August, 2013)

Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered.

Data limited to observations, not complete inventory

Species	Status	CALIENTE MTN	CALIFORNIA VALLEY	CARNEROS ROCKS	CHIMINEAS RANCH	LA PANZA NE	LA PANZA RANCH	LAS YEGUAS RANCH	MCKITTRICK SUMMIT	PAINTED ROCK	SIMMLER
Animals											
American badger	SSC		x			x	x		x		
blunt-nosed leopard lizard	FE; SE; FP								x	x	x
Burrowing owl	SSC (Burrow sites ,some wintering sites)				x	x					x
coast horned lizard	SSC										x
giant kangaroo rat	FE; SE		x		x			x	x	x	x
longhorn fairy shrimp	FE		x		x			x			x
mountain plover	SSC - Wintering									x	
Nelson's antelope squirrel	ST		x						x	x	x
pallid bat	SSC		x							x	x
pocket pouch fairy shrimp	SA									x	
prairie falcon	SA (Nesting)	x	x	X	x	x	x	x	x	x	x
San Joaquin kit fox	FE; ST		x		x	x		x	x	x	x
San Joaquin pocket mouse	SA								x		x
San Joaquin whipsnake	SSC					x			x		
Tipton kangaroo rat	FE; SE				x					x	x

Soda Lake Watershed

Species	Status	CALIENTE MTN	CALIFORNIA VALLEY	CARNEROS ROCKS	CHIMINEAS RANCH	LA PANZA NE	LA PANZA RANCH	LAS YEGUAS RANCH	MCKITTRICK SUMMIT	PAINTED ROCK	SIMMLER
Tulare grasshopper mouse	SSC								x		x
vernal pool fairy shrimp	FT										x
western spadefoot	SSC		x								x
Plants											
Coulter's goldfields	CRPR 1B.1							x		x	
diamond-petaled California poppy	CRPR 1B.1							x			x
Eastwood's larkspur	CRPR 1B.2				x					x	
heartscale	CRPR 1B.2									x	x
Jared's pepper-grass	CRPR 1B.2				x					x	x
Kern mallow	FE		x						x		x
Lemmon's jewel-flower	CRPR 1B.2				x	x			x	x	
Lost Hills crownscale	CRPR 1B.2		x		x	x			x	x	x
Munz's tidy-tips	CRPR 1B.2					x			x	x	x
oval-leaved snapdragon	CRPR 4.2				x					x	x
recurved larkspur	CRPR 1B.2		x		x				x	x	x
round-leaved filaree	CRPR 1B.1	x	x		x	X					x
San Joaquin woollythreads	FE										x
shining navarretia	CRPR 1B.2		x								
showy golden madia	CRPR 1B.1					x					
spiny-sepaled button-celery	CRPR 1B.2		x								

Steelhead Streams	None
Stream Habitat Inventory	No source identified, not historically fish habitat

Soda Lake Watershed

Fish Passage Barriers	None identified
Designated Critical Habitat	Yes; Longhorn Fairy Shrimp and Vernal Pool Fairy Shrimp (USFWS Critical Habitat Portal, viewed 2013)
Habitat Conservation Plans	Yes; Carrizo Plain Natural Area Plan, Stewardship Council Land Conservation Plan
Other Environmental Resources	Carrizo Plains National Monument and Ecological Reserve and Soda Lake, San Andreas Fault Zone of Eastern San Luis Obispo County (SLO County Flood Control and Water Conservation District, 2007)
Land Use	
Jurisdictions and Local Communities	County of San Luis Obispo, California Valley Community Services District, BLM (Carrizo Plains National Monument)
% Urbanized	14% (Residential Suburban) (SLO County LUC)
% Agricultural	80% (SLO County LUC)
% Other	9% (5% Rural; 1% Open Space; 0.1% Recreational, commercial retail or public facility; 3% Industrial solar farms) (SLO County LUC)
Planning Areas	Carrizo Plain, Los Padres National Forest
Potential growth areas	California Valley
Facilities Present	Goodwin Education Center within the Carrizo Plain National Monument, Soda Lake, Chimineas Ranch, Carrizo Plain Ecological Reserve, California Valley Solar Ranch, Topaz Solar Farms, Elementary School, microwave station operated by the U.S. Navy, oil well operations
Commercial Uses	California Valley Solar Ranch (includes the remediation of Farm Camp Quarry/California Gypsum), Topaz Solar Farms, oil well drilling, cattle ranching, dry land farming, retail stores
Other Notable Land Use characteristics	As part of conditions for approval of California Valley Solar Ranch and Topaz Solar Farm, the county required the development of a program to retire lots within California Valley sub-division. For TSF, the county required habitat to be preserved through the use of permanent open space easements within the Carrizo Plain (North Coast Engineering, 2008).
Demographics	
Population	464 in watershed (US Census Block, 2010)
Race and Ethnicity	Watershed: Caucasian, representing 76%. Latinos represent 18% in City. The remaining races each represent less than 4%, including African American, American Indian, Pacific Islander, and Asian (US Census Bock, 2010).
Income	MHI $60,676 in watershed (US Census Tract, 2010)

Soda Lake Watershed

Disadvantaged Communities	No; 7.0% of individuals are below poverty level in watershed (U.S. Census Tract, 2010).
Water Supply	
Water Management Entities	None; area residents and commercial uses served by Individual wells (Carollo, 2012)
Groundwater	Yes; Carrizo Plains and Big Spring Area (ptn) Basins (Carollo, 2012) Users of the basin include small public water system serving local school, agricultural and residential purposes, and solar farms.
Surface Water	No public reservoirs.
Imported Water	None
Recycled/ Desalinated Water	As of 2013 there is under construction a brine pond and reverse osmosis system at California Valley Solar Ranch on the north-east Carrizo to serve the solar plant's needs (North Coast Engineering, 2008).
Key groundwater percolation area(s)	None Identified - Recharge to the basin is largely by percolation of stream flow and infiltration of rainfall to the valley floor (Ca. Dept. of Water Resources, 2003).
Water Budget	Yes; Aspen Environmental Group, 2011, for Topaz Solar Project
Water Uses	
Beneficial Uses	*San Diego Creek* - Municipal & Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Fresh Water Habitat (WARM), Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH) and Commercial and Sport Fishing (COMM). *Soda Lake* - Industrial Service Supply (IND), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Fresh Water Habitat (WARM), Significance (BIOL), Rare, Threatened, or Endangered Species (RARE) and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)
Other Unique Characteristics	
Carrizo Plain National Monument	A cooperative effort since 1985 between Bureau of Land Management, California Fish and Wildlife, and the Nature Conservancy. 250,000 acres of relatively undisturbed habitat.
Soda Lake	A 13,000 acre ephemeral alkaline lake at the center of the Carrizo Plain. Provides an important habitat for migratory birds and is one of the largest undisturbed alkali wetlands in California. Without an outlet, water from the lake evaporates leaving behind residual sulfates and

		carbonates. Wintering area for sandhill cranes. The alkaline conditions support one of the most highly localized plant species in the world, alkaline peppergrass (*Lepidium jaredii*)
	Painted Rock	The single largest individual pictograph site in the country, Painted Rock is an isolated rock formation which Yokut, Salinan, and Chumash Indians decorated with unique rock paintings ("pictographs") and figures scratched into rocks ("petroglyphs"). These rock paintings have almost been entirely vandalized. Part of the Carrizo Plain Rock Art Discontiguous National Register District dating to circa 400 to 800 years before present.
	California Valley	An undeveloped village settlement encompassing 24,083 acres located on the Carrizo Plain, about 60 miles east of San Luis Obispo. It came into being in l960, when part of the El Chicote Ranch was subdivided into more than 7,200 2.5-acre "ranchos" and sold through nationwide advertising as "the geographic center of this spectacular California growth area with unbounded future." This proposed new town has never developed and each year many of the subdivided parcels are sold at tax auctions.
	San Andreas Fault Zone	One of the most seismically active faults in North America. Important from a biological and geological standpoint. The San Andres Fault in the Carrizo Plain has the largest post-early Miocene offset and is the oldest reach of the entire active fault system (Pollard et. al., 1995). Sag ponds have special ecological significance due to scarcity of water in this region. Much of the fault zone has agricultural preserve status.
	Hubbard Hill Freeborn Mountain	These ridges along the westerly border of the Carrizo Plains, include 7,000 acres under Bureau of Land Management control. Diverse native species are found in the area, with no single dominant plant association
	Wildflower Fields	Mid-March to mid-April is the usual time for wildflower season, but it is dependent on the weather and varies from season to season. Temperature and rainfall affect which flowers bloom. Every year is not spectacular and only a few flowers may prevail in some years. Typical species include: gold fields, valley phacelia, goldenbush shrubs, bush lupine, pale yellow astragalus, locoweed, filaree, yellow tropidocarpum, white popcorn flower, orange fiddleneck, poppies, hillside daises, sun cups and baby-blue eyes. One of the three remaining locations known to support extant populations for the California jewelflower as well as other special status plants (BLM, 2013)
	Climate Change Considerations	
		Saltbrush and other native shrubs are expected to decline and marginal farmland may become less productive and retired in the Carrizo Plain area (ClimateWise, 2010). See IRWMP, 2014 Section H, Climate Change *Information is general for County, not watershed specific*

Soda Lake Watershed

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	Sub-watersheds (CDF Watershed Name)
3311.000101	0	Undefined	0	Undefined	311.00	Panorama Hills	East of Simmler
3311.000102	0	Undefined	0	Undefined	311.00	Panorama Hills	San Diego Creek
3311.000104	0	Undefined	0	Undefined	311.00	Panorama Hills	North of California Valley
3311.000401	0	Undefined	0	Undefined	311.00	West of Soda Lake	Painted Rock
3311.000402	0	Undefined	0	Undefined	311.00	West of Soda Lake	Goodwin Ranch
3311.000403	0	Undefined	0	Undefined	311.00	West of Soda Lake	East of Freeborn Mtn
3311.000500	0	Undefined	0	Undefined	311.00	Soda Lake	Soda Lake / Carrizo Plain (ptn)

Major Changes in the Watershed

- 4000-8000 years before present – The Carrizo Plains were a meeting place for Salinan, Yokut, Chumash and other Indian tribes. Vaqueros Formation rock monoliths are decorated with art that is being protected today.
- 1780 – First contact by Europeans. Large herds of sheep, horse and cattle brought into the area by Spanish. Introduce non-native species to the Carrizo grasslands
- 1857 – Major earthquake that shaped much of the natural landscape of the Carrizo Plains area (Pollard et. al., 1995)
- 1876 – First homesteads established on Carrizo Plains. Dry grain farming was intensive after invention of mechanized agricultural equipment in 1912, resulting in as much as 2 feet of top soil loss in some field margins
- 1939 to Post World War II – A combination of good weather and post War expansion led to increased profitability and productivity of the areas farms and ranches.
- 1964 – Creation of California Valley. Chicote Ranch, a 7,500 acre ranch just south of 58, was divided into two-and-a half acre parcels which were promoted all over the state as retirement homes.
- 2001 – Carrizo Plain National Monument created by President Clinton under the authority of the Antiquities Act of 1906.
- 2013 – Large solar farms established in the watershed

Source: Santa Margarita Historical Society, http://www.santamargaritahistoricalsociety.org/pages/carrisa_plains.html unless otherwise noted

Soda Lake Watershed

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)
Soda Lake	Ephemeral	Ammonia	Unknown Source
Carrizo Plain	Unknown	None	n/a
Goodwin Ranch	Unknown	None	n/a
Painted Rock	Unknown	None	n/a
San Diego Creek	Unknown	None	n/a

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints (Master Water Report)	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Carrizo Plain	8000-11,000 AF (Carollo, 2012)	Physical limitations and water quality issues (Carollo, 2012).	Yes; see description below.	Exceeds usable mineral quality for total dissolved solids, chloride, sulfate, boron, sodium, and nitrogen (SLO County Flood Control and Water Conservation District, 2007).
Big Spring Area (ptn)	No data available (Carollo, 2012)	Constraints on water availability in this basin are primarily based on physical limitations. (Carollo, 2012)	No data available	No data available

Groundwater Quality Description: Analyses of groundwater from 79 wells in this basin during 1957 through 1985 show Total Dissolved Solids (TDS) content ranging from 161 to 94,750 ppm. A highly mineralized groundwater zone is found in the lower part of the alluvium and the upper part of the Paso Robles Formation where they underlie Soda Lake. Water in a deeper zone Paso Robles Formation is of

higher quality and confined in the vicinity of Soda Lake. Groundwater in the Morales Formation is likely to be brackish. There are areas with locally high nitrate and salinity concentrations based on well water sampling (Carollo, 2012).

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Groundwater quality		Carollo, 2012
Groundwater Quantity	Physical Limitations	Carollo, 2012
Outdated Studies of the GW basins		Carollo, 2012
Soda Lake 303(d) listed for ammonia		Carollo, 2012

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Soda Lake Watershed

Significant Studies in Progress:

The compliance reporting required of the developing solar ranches has generated many studies informing water quality, listed species, and restoration schema and groundwater quantity.

Upper San Juan Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estrella 17	Rafael/ Big Spring WPA 11, Salinas/ Estrella WPA 14	164,198 acres	Estrella River – to Salinas River and Pacific Ocean (Monterey Bay National Marine Sanctuary)	Paso Robles, Big Spring Area, Rafael Valley, Cuyama Valley (ptn)	County of San Luis Obispo, Los Padres National Forest

Description:

The Upper San Juan Creek Watershed is located in the eastern portion of the County directly adjacent to the Carrizo Plain. The headwaters are located in the La Panza range with the highest point at approximately 3900-feet. The confluence of San Juan Creek with the Estrella River occurs north of Creston. San Juan Creek, a permanent stream, affords recreational possibilities. The mountain slopes are excellent for hiking and riding. Wildlife is abundant, and geology and natural vegetation are of special interest. A spectacular view of the Carrizo Plain is provided from these mountains. The San Juan Creek Valley is generally used most intensively because of better soils and water availability. Irrigated production has increased during the last 10 years, particularly in vineyards and alfalfa. Dry farming and grazing operations encompass the rest of the agricultural uses.

Existing Watershed Plans:

No existing plans to date

Upper San Juan Creek Watershed

Characteristics

	Physical Setting	
	Rainfall	Average Annual: 8-23 in. (NRCS shapefile, 2010)
	Air Temperature	Summer Range (August 1990-2012): 52°-95°F Winter Range (December 1990-2012): 29°-60°F (La Panza, NOAA National Climatic Data Center, viewed 2013)
	Geology Description	French Camp, Carnaza Creek and La Panza Ranch are composed of flat highly infiltrative Quaternary material. Windmill Creek, Placer Creek, Willow Canyon, Beartrap Creek, Hay Canyon, Piletas canyon and Anderson Canyon have steep pre-Quaternary non-infiltrative headwaters with steep moderately infiltrative early to mid-Tertiary valleys. Carissa Ranch and Wild Hog Creek sub-watersheds have moderate steep moderately infiltrative early to mid-Tertiary headwaters and are flat highly infiltrative Quaternary inland. La Panza Canyon, Tajea Flat and Turkey Camp Well are composed of steep moderately infiltrative early to mid-Tertiary materials. Barett Creek has steep moderately infiltrative early to mid-Tertiary headwaters with a flat pre-Quaternary moderately infiltrative valley. McGinnis Creek has steep pre-Quaternary non-infiltrative headwaters with a flat highly infiltrative Quaternary valley. Cedar Canyon, Rogers Creek and Rafael Creek have moderately infiltrative early to mid-Tertiary headwaters with flat Quaternary highly infiltrative valleys (Bell, pers. comm., 2013). Groundwater is found in Holocene age alluvium and the Pleistocene age Paso Robles Formation. Specific yield values in the Paso Robles Sub-basin range from 7 to 11 percent, with an average specific yield of 9 percent (Fugro West 2001c). DWR (1958) estimated the average specific yield for the sub-basin at 8 percent. DWR (1999) estimated the average specific yield at 15 percent for the alluvium and 9 percent for the Paso Robles Formation. Alluvium. Holocene age alluvium consists of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. This alluvium provides limited amounts of groundwater and reaches 130 feet thick near the Salinas River, but is generally less than 30 feet thick in the minor stream valleys (DWR 1999). Its high permeability results in a well production capability that often exceeds 1,000 gpm (Fugro West 2001a). Groundwater in Holocene alluvium is mostly unconfined. Paso Robles Formation. Pleistocene age Paso Robles Formation, which is

Upper San Juan Creek Watershed

		the most important source of groundwater in the sub-basin, is unconsolidated, poorly sorted, and consists of sand, silt, gravel, and clay (DWR 1979). This formation reaches a thickness of 2,000 feet and groundwater within it is generally confined (DWR 1958) (Carollo, 2012).
	Hydrology	
	Stream Gage	None (USGS, viewed August 2013)
	Hydrology Models	Yes; SLO County Flood Control and Water Conservation District, 2008, Paso Robles Groundwater Sub-basin Water Banking Feasibility Study *Data general for Paso Robles Sub-basin,, not watershed specific*
	Peak Flow	No data available (USGS, viewed August 2013)
	Base Flow	No data available (USGS, viewed August 2013)
	Flood Reports	No source identified
	Flood Control Structures	No data available
	Areas of Heightened Flood Risk	No data available
	Biological Setting	
	Vegetation Cover	Primarily non-native grassland; mixed chaparral consisting mainly of buckbrush and chamise; blue oak woodland with chamise-redshank chaparral consisting mainly of chamise chaparral; juniper consisting mainly of semi-desert chaparral; coastal scrub consisting mainly of diablan sage scrub; 3 blue oak-foothill pine consisting mainly of foothill pine. (SLO County vegetation shapefile, 1990) *Data limited by age of shapefile*
	Invasive Species	No data available
	Special Status Wildlife and Plants	*Key*: Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. *Data limited to observations, not complete inventory*

Upper San Juan Creek Watershed

Species	Status	BRANCH MTN	CALIFORNIA VALLEY	CAMATTA RANCH	CHIMINEAS RANCH	HOLLAND CANYON	LA PANZA	LA PANZA NE	LA PANZA RANCH	LOS MACHOS HILLS	PACKWOOD CREEK	POZO SUMMIT	SIMMLER
Animals													
American badger	SSC				x	x		x	x		x		
blunt-nosed leopard lizard	FE; SE; FP	x			x								
burrowing owl	SSC (Burrow sites, some wintering sites)				x								
California condor	FE; SE						x						
giant kangaroo rat	FE; SE					x			x		x		
long-eared owl	SSC				x								
longhorn fairy shrimp	FE	x	x		x								x
Nelson's antelope squirrel	ST		x		x								x
pallid bat	SSC		x				x						
prairie falcon	SA-Nesting	x	x	x		x	x	x	x	x	x	x	
San Joaquin kit fox	FE; ST				x			x	x				
San Joaquin whipsnake	SSC				x								
silvery legless lizard	SSC	x											
Tulare grasshopper mouse	SSC						x						
western pond turtle	SSC	x			x								
western spadefoot	SSC				x								
Plants													
California jewel-flower	FE; SE						x		x				
Camatta Canyon amole	FT; SR			x									
chaparral ragwort	CRPR 2B.2			x									
diamond-petaled California poppy	CRPR 1B.1						x		x				
dwarf calycadenia	CRPR 1B.1			x			x		x				
Indian Valley spineflower	CRPR 1B.2							x	x				
Kern mallow	FE				x				x				
La Panza mariposa-lily	CRPR 1B.3	x			x		x					x	
Lemmon's jewel-flower	CRPR 1B.2						x	x	x			x	
Munz's tidy-tips	CRPR 1B.2							x					

Upper San Juan Creek Watershed

Species	Status	BRANCH MTN	CALIFORNIA VALLEY	CAMATTA RANCH	CHIMINEAS RANCH	HOLLAND CANYON	LA PANZA	LA PANZA NE	LA PANZA RANCH	LOS MACHOS HILLS	PACKWOOD CREEK	POZO SUMMIT	SIMMLER
oval-leaved snapdragon	CRPR 4.2				x								
pale-yellow layia	CRPR 1B.1						x						
Palmer's mariposa-lily	CRPR 1B.2											x	
Parish's checkerbloom	SR						x						
round-leaved filaree	CRPR 1B.1				x				x				
Santa Margarita manzanita	CRPR 1B.2						x					x	
showy golden madia	CRPR 1B.1				x								
straight-awned spineflower	CRPR 1B.3	x											
umbrella larkspur	CRPR 1B.3	x											

Steelhead Streams	No (Not listed in Holland Canyon or Camatta Canyon Quads in CNDDB Database viewed 2013)
Stream Habitat Inventory	No source identified
Fish Passage Barriers	None listed in PAD Database
Designated Critical Habitat	Yes; California Condor, Purple Amole (USFWS Critical Habitat Mapper, viewed 2013)
Habitat Conservation Plans	Yes; North San Luis Obispo County Habitat Conservation Program – multiple species, initially San Joaquin kit fox *HCP is general for North County, not watershed specific*
Other Environmental Resources	None listed (SLO County Flood Control and Water Conservation District, 2007)
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo
% Urbanized	0.7% Public Facility and Residential Suburban
% Agricultural	74.9%
% Other	22% Open Space; 2.4% Rural Land
Planning Areas	Shandon-Carrizo Planning Area
Potential growth areas	None listed

Upper San Juan Creek Watershed

	Facilities Present	No data available
	Commercial Uses	Agriculture
	Demographics	
	Population	38 in watershed (US Census, 2010)
	Race and Ethnicity	Watershed: 86.8% Caucasian, 5.3% Latino, 5.3% Two Plus Races, 2.6% American Indian
	Income	MHI $62,773 in watershed (US Census, 2011, based on interpolation of two census tracts covering multiple watersheds)
	Disadvantaged Communities	No; 6.0% of individuals are below poverty level in watershed
	Water Supply	
	Water Management Entities	Uses served by individual wells
	Groundwater	Yes; Paso Robles, Big Spring Area, Rafael Valley, and Cuyama Valley (ptn) Basins
	Surface Water	No public reservoirs.
	Imported Water	None
	Recycled/Desalinated Water	None
	Key infiltration zone	No comprehensive study has been completed to date however the Shell Creek/Camatta Creek and Lower San Juan Creek Recharge Areas were identified by the SLO County Flood Control and Water Conservation District in 2008. Natural recharge in the basin is derived from infiltration of precipitation, seepage from streams, and return flow from irrigation and other uses (SLO County Flood Control and Water Conservation District, 2008*)*
	Water budget performed?	Yes; Todd Engineers, 2013, for Paso Robles Groundwater Sub-basin Management Plan Update *Data is general for Paso Robles Sub-basin, not watershed specific*
	Water Uses	
	Beneficial Uses	*San Juan Creek* - Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Wildlife Habitat (WILD), Warm Freshwater habitat (WARM), Threatened, or Endangered Species (RARE), and Commercial and Sport Fishing (COMM). (CCRWQCB, 2011)

Upper San Juan Creek Watershed

	Other Unique Characteristics	
	Valley Sink Scrub	A unique natural community known as valley sink scrub exists in the watershed. Characterized by low, open succulent shrublands dominated by alkali tolerant plant species such as frankenia (*Frankenia salina*), spear oracle (*Atriplex patula*), wedge scale (*Atriplex truncata*), alkali weed (*Cressa truxillensis*) and saltgrass (*Districhlis spicata*). Valley scrub soils are typically dark, sticky clay soils that often have a brilliant white salty crust over them. Grazing has altered much of this community where non-native grasses now dominate much of the valley floor.
	Climate Change Considerations	
		See IRWMP, 2014 Section H, Climate Change *Data is general for County, not watershed specific*

Watershed Codes

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-Area Name	SWRCB Number	CDF Super Planning	CDF Watershed Area
3317.000101	0	Undefined	0	Undefined	317.00	Headwaters San Juan Creek	Carrisa Ranch
3317.000102	0	Undefined	0	Undefined	317.00		Barrett Creek
3317.000103	0	Undefined	0	Undefined	317.00	Headwaters San Juan Creek	Tajea Flat
3317.000104	0	Undefined	0	Undefined	317.00	Headwaters San Juan Creek	Wild Hog Creek
3317.000105	0	Undefined	0	Undefined	317.00	Headwaters San Juan Creek	Rafael Creek
3317.000106	0	Undefined	0	Undefined	317.00	Headwaters San Juan Creek	Rogers Creek
3317.000107	0	Undefined	0	Undefined	317.00	Headwaters San Juan Creek	Anderson Canyon
3317.000108	0	Undefined	0	Undefined	317.00	Headwaters San Juan Creek	Piletas Canyon
3317.000109	0	Undefined	0	Undefined	317.00	Headwaters	Turkey Camp Well

						San Juan Creek	
3317.000201	0	Undefined	0	Undefined	317.00	Sixteen Spring	Beartrap Creek
3317.000202	0	Undefined	0	Undefined	317.00	Sixteen Spring	Hay Canyon
3317.000203	0	Undefined	0	Undefined	317.00	Sixteen Spring	Willow Canyon
3317.000204	0	Undefined	0	Undefined	317.00	Sixteen Spring	Placer Creek
3317.000205	0	Undefined	0	Undefined	317.00	Sixteen Spring	La Panza Canyon
3317.000206	0	Undefined	0	Undefined	317.00	Sixteen Spring	La Panza Ranch
3317.000207	0	Undefined	0	Undefined	317.00	Sixteen Spring	Carnaza Creek
3317.000208	0	Undefined	0	Undefined	317.00	Sixteen Spring	Cedar Canyon
3317.000301	0	Undefined	0	Undefined	317.00	Navajo Creek	Windmill Creek
3317.000302	0	Undefined	0	Undefined	317.00	Navajo Creek	French Camp
3317.000303	0	Undefined	0	Undefined	317.00	Navajo Creek	McGinnis Creek
3317.000401	0	Undefined		Undefined	317.00	San Juan Valley	Bellyache Spring
3317.000410		Undefined		Undefined	317.00	San Juan Valley	Sandy Canyon

Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)

Major Changes in the Watershed

The San Juan is the southern branch of the Estrella River, albeit the summer season finds only occasional pools in its broad, sandy channel. The rains convert this into a veritable river, fifty to 100 yards wide, running through small valleys and hills softly rounded, clothed in a luxuriant growth of alfilaria?, wild oats, bunch-grass and flowering shrubs (Storke, 1891).

This section is a paradise to the stockman, being devoted almost entirely to pasturage. Nevertheless, its resources would suffice for varied industries. There is here much oak timber, the soil is very fertile, there are mineral springs, ore-bearing rocks, and diverse elements to support a large population. This valley may be considered as including the following tracts: That section between the San Jose Range and the Carriso Plain; the ranches Las Chimeneas and Avenales in the southern part; La Panza and the mining district in the central part; and La Cometa or Comate, California, and San Juan Capistrano in the north (Storke, 1891).

Upper San Juan Creek Watershed

Among the old settlers were: John Gilkey, on the Comate, murdered in 1858; Baratie and Borel, on the San Juan Capistrano, murdered in 1858; Philip Biddle, Robert G. Flint, .fames Mitchell, Joseph Zumwalt, D. W. James and John D. Thompson, all of whom located there twenty to thirty-five years since (Storke, 1891).

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Anderson Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Barett Creek	Undetermined	Not assessed	Undetermined	Not assessed
Beartrap Creek	Undetermined	Not assessed	Undetermined	Not assessed
Camaza Creek	Undetermined	Not assessed	Undetermined	Not assessed
Carissa Ranch	Undetermined	Not assessed	Undetermined	Not assessed
Cedar Canyon	Undetermined	Not assessed	Undetermined	Not assessed
French Camp	Undetermined	Not assessed	Undetermined	Not assessed
Hay Canyon	Undetermined	Not assessed	Undetermined	Not assessed
La Panza Canyon	Undetermined	Not assessed	Undetermined	Not assessed
La Panza Ranch	Undetermined	Not assessed	Undetermined	Not assessed
McGinnis Creek	Undetermined	Not assessed	Undetermined	Not assessed
Piletas Canyon	Undetermined	Not assessed	Undetermined	Not assessed
Placer Creek	Undetermined	Not assessed	Undetermined	Not assessed
Rafael Creek	Undetermined	Not assessed	Undetermined	Not assessed
Rogers Creek	Undetermined	Not assessed	Undetermined	Not assessed
Tajea Flat	Undetermined	Not assessed	Undetermined	Not assessed
Turkey Camp Well	Undetermined	Not assessed	Undetermined	Not assessed
Wild Hog Creek	Undetermined	Not assessed	Undetermined	Not assessed

Upper San Juan Creek Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Paso Robles	97,700 AF (SLO County RCS, 2011).	Physical limitations, water rights and water quality issues (Carollo, 2012).	Yes; see description below.	None (CCRWQCB, 2011
Big Spring Area	None (Carollo, 2012)	None (Carollo, 2012)	None (Carollo, 2012)	None (CCRWQCB, 2011
Rafael Valley	None (Carollo, 2012)	None (Carollo, 2012)	None (Carollo, 2012)	None (CCRWQCB, 2011
Cuyama Valley (ptn)	None (Carollo, 2012)	None (Carollo, 2012)	None (Carollo, 2012)	None (CCRWQCB, 2011

Groundwater Quality Description: The predominant cations are calcium and sodium and the predominant anion is bicarbonate (DWR 1981; Fugro West, 2001b). Analysis of 48 public supply wells in the sub-basin show an average Total Dissoved Solid (TDS) content of 614 ppm and a range of 346 to 1,670 ppm.

In one study, (Fugro West 2001b), 23 of 74 samples collected exceeded one or more drinking water standards. The maximum contaminant level (MCL) for nitrate was exceeded in 4 samples (Fugro West, 2001b). Water quality trends indicate an increasing concentration of TDS and chloride in the deep, historically artesian aquifer northeast of Creston (Carollo, 2012).

Another major problem is the unpredictable occurrence of hydrogen sulfide in the ground water (DWR, 1981)

Primary Issues

Issue	*Potential Causes*	*Referenced from*
Significant water level declines	Range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural “ranchette”) users	Carollo, 2012
Groundwater Quality	High concentrations of TDS, chlorides, sulfates, and boron	Carollo, 2012

Upper San Juan Creek Watershed

Groundwater: Paso Robles Groundwater Basin

According to multiple studies of this basin, annual basin pumping is now at or near the basin's perennial yield (Paso Robles Groundwater Management Plan, 2011). From 1997–2009, water levels declined on average of 2–6 feet per year, depending on the location. A Todd Engineering monitoring report (2007) indicated that the Basin was not approaching the safe yield level and some areas were experiencing significant declines in groundwater elevations. A later study completed in 2009 suggested groundwater pumping was approaching the safe yield level of the Basin. The 2010 Resource Capacity Study prepared by the San Luis Obispo County Planning Department stated that the Basin is now near or at perennial yield levels. The County Board of Supervisors certified a Level of Severity III for the Paso Robles Basin in October, 2012, due to declining water levels. In August 2013, the County Board of Supervisors adopted an urgency ordinance to limit new draws from the Paso Robles Groundwater basin.

The Paso Robles Groundwater Basin encompasses an area of approximately 790 square miles and is the primary, and in many places the only, source of water available to property owners throughout Northern San Luis Obispo County. The basin extends from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. The basin supplies water for 29% of SLO County's population and an estimated 40% of the agricultural production of the County (Paso Robles Groundwater Basin Blue Ribbon Committee, 2013).

Paso Robles, Atascadero, and Templeton draw their water from the groundwater basin (primarily the Atascadero sub-basin), the underflow of the Salinas River and from the Nacimiento Pipeline Project. The remaining communities (Shandon, San Miguel, Creston, Bradley, Camp Roberts, Whitley Gardens, and Garden Farms) are entirely dependent on the groundwater basin for their water supply.

An established bi-annual well monitoring program overseen by the SLO County Flood Control and Water Conservation District reported these water declines in groundwater dependent communities (Through April, 2013):

a. Shandon: Water levels have dropped approximately 17 feet from 2011 to 2013.
b. Creston: Water levels have dropped approximately 25 feet from 2011 to 2013.
c. Estrella: Water levels have dropped approximately 25 feet from 2011 to 2013.
d. San Juan: Water levels have dropped approximately 5 feet from 2012 to 2013.

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Significant Studies in Progress:

3.2.4 South County Sub-Region

This sub-region includes the following watersheds:

Alamo Creek Watershed

Arroyo Grande Creek Watershed

Cuyama River Watershed

Huasna River Watershed

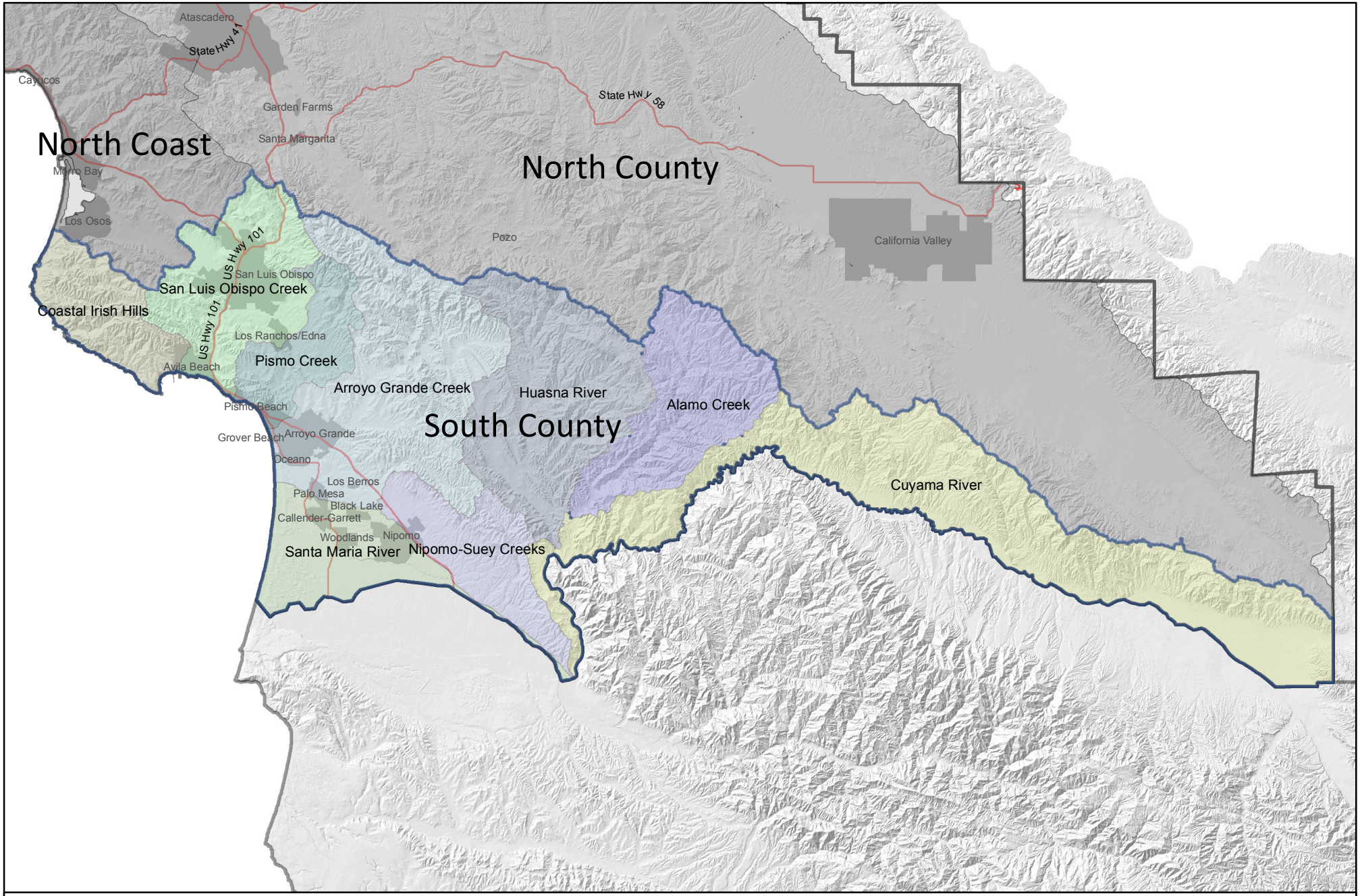
Irish Hills Coastal Watershed

Nipomo-Suey Creeks Watershed

Pismo Creek Watershed

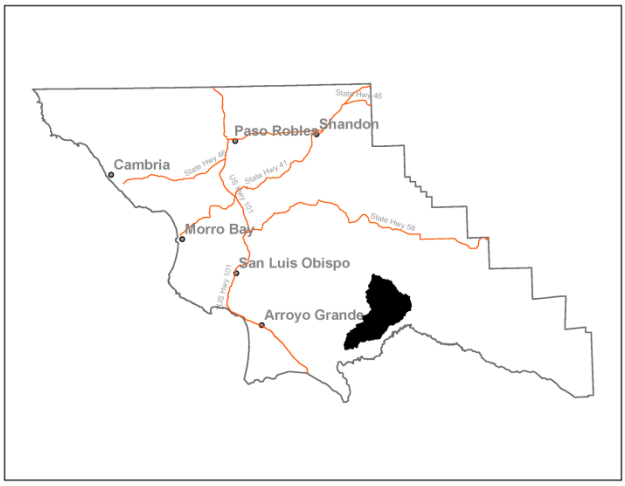
Santa Maria River Watershed

San Luis Obispo Creek Watershed


Atascadero
State Hwy 41
Cayucos
Garden Farms
Santa Margarita
State Hwy 58
North Coast
North County
Morro Bay
Los Osos
Pozo
California Valley
US Hwy 101
San Luis Obispo
San Luis Obispo Creek
Coastal Irish Hills
US Hwy 101
Los Ranchos/Edna
Pismo Creek
Avila Beach
Arroyo Grande Creek
Huasna River
Alamo Creek
Pismo Beach
South County
Grover Beach
Arroyo Grande
Oceano
Los Berros
Palo Mesa
Black Lake
Callender-Garrett
Cuyama River
Woodlands
Nipomo
Santa Maria River
Nipomo-Suey Creeks
N
0 2 4 8 12 16
Miles
San Luis Obispo County Watersheds
South County Planning Area
RESOURCE
CONSERVATION DISTRICTS

Alamo Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Santa Maria HU 12	Huasna Valley WPA 8	56,277 acres	Cuyama River at Twitchell Reservoir	None	County of San Luis Obispo U. S. Forest Service



Description:

The Alamo Creek Watershed is an inland basin located in southern San Luis Obispo County. The drainage rises to a maximum elevation of approximately 3,800 feet above sea level. Alamo Creek flows to the Cuyama River at Twitchell Reservoir. Twitchell dam is downstream in the Cuyama Watershed, but its presence affects habitats, hydrology, and land use in Alamo Creek Watershed. Major tributary basins with their headwaters in the La Panza Mountain Range: Little Jollo, Sheep, Kennel, Los Machos, and Branch Creeks.

The watershed is dominated by the Los Padres National Forest which permits recreation including camping, hunting, and off-highway vehicle uses. The watershed also has agricultural land uses.

Watershed Plans:

None

Alamo Creek Watershed

Characteristics:

	Physical Setting	
	Rainfall	18 – 25 inches (NRCS, 2010) 17 inches Mean Annual (SLOCountyWater.org, viewed 2013)
	Air Temperature	Summer Range (August 1981-2010): 50°- 82° F Winter Range (December 1981-2010): 36° - 66° F At Twitchell Dam, CA. (NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Alamo Creek, Branch Creek, Kennel Creek, and Sheep Creek sub watersheds are composed of steep moderately infiltrative early to mid-Tertiary headwaters – category #11. Little Jollo Creek sub watershed is composed of moderately steep to steep pre-quaternary non-infiltrative headwaters – category #9. (Stillwater Sciences, personal communication, 2013) The Alamo Creek watershed is characterized by a Middle to Upper Jurassic island-arc ophiolite and an overlying thick forearc of Upper Jurassic and Cretaceous marine sedimentary rocks resembling those on the west side of the Great Valley of CA. Along the south are Paleocene and Eocene strata which consist mainly of submarine-fan deposits which overlie the Mesozoic succession in the Santa Ynez Mountains and southern San Rafael Mountains. Flanking the Stanley Mountain terrane on the northeast of the watershed is the southern part of the Salinia terrane which is defined by ~95 to ~80 million year old granitic plutons that intrude older metasedimentary rocks of unknown origin and overlying Upper Cretaceous and Paleogene marine and nonmarine forearc strata. The Sur-Nacimiento fault zone marks the northeast edge of the Stanley Mountain terrane. The Paleocene rocks unconformably overlie Upper Cretaceous strata in a shallow syncline near the convergence of the Sur-Nacimiento and East Huasna fault zones. This thin Paleogene sequence is unlike any in the adjacent Huasna syncline southwest of the East Huasna fault zone. The limited extent and thinness of the sequence near upper Pine Creek contrast sharply with the widely distributed, thick Paleocene and lower Eocene submarine-fan sequences northeast of the Sur-Nacimiento fault zone. (Vedder, 1991)
	Hydrology	
	Stream Gages	No; USGS 11137400 Alamo Creek near Nipomo CA (1959 - 1978, discontinued); USGS 11137500 Alamo Creek near Santa Maria CA (1943 - 1962, discontinued). (USGS California Water Science Center, viewed 2013) Last data is from late 1970's.

Alamo Creek Watershed

	Hydrologic Models	Yes; There is a USGS HEC-HMS used to calculate reservoir water surface elevation on Twitchell Dam. (TMA, 2010) Hydrologic model does not include entire watershed.
	Peak Flow	3,120 - 9,020 cfs at USGS 11137400 (USGS, viewed 2013); 2,820 - 3,120 cfs at USGS 11137500 (USGS, viewed 2013) Last data is from late 1970's.
	Base Flow	0 – 3 cfs at USGS 11137400 (USGS, viewed 2013) ; 3 – 6 cfs at USGS 11137500 (USGS, viewed 2013) It is unknown if these gages were placed to accurately capture base flows. Many gages are placed as alert systems and only capture peak flows.
	Flood Reports	No sources identified. Though normally dry, wetter winters have seen the [Twitchell] reservoir inundate …the lower two miles of Alamo Creek, rendering areas below the 652-foot elevation unsuitable for permanent buildings. Upstream portions of these watercourses (and other creeks in the planning area) are potential flood hazard areas during intense or prolonged rainfall. (San Luis Obispo County, Huasna-Lopez Area Plan, 2003) Limited data.
	Biological Setting	
	Vegetation Cover	Primarily buck brush chaparral, with chamise,and blue oak woodland with some non-native annual grassland, venturan coastal sage scrub, coast live oak forest, semi desert chaparral, central coastal scrub, agricultural land, and permanently flooded lacustrine (San Luis Obispo County vegetation, 1990) Forest Service Calveg data from 2002 for this watershed also describe primarily tree and shrub communities, with some grasslands. Shrub types include chamise chaparral and sage scrub. Forest and woodland types include blue oak woodland, coast live oak woodland, foothill woodland with mixed oak and foothill pine, and coulter pine. Willow and mulefat riparian scrub are noted along drainages. (Calveg R5 Zone 6, EvegTile42_97_02, 2007) Limited current spatial data. No alliance level vegetation mapping was available for the entire County. The U.S. Forest Service data is actually based on 2002 aerials.
	Invasive Species	No sources identified.
	Special Status Wildlife and Plants	Coast horned lizards, which are thought to be in decline, have been documented in Alamo Creek and Cuyama Watersheds in the last few years. (Althouse and Meade, 2013)

Alamo Creek Watershed

Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013)

Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered.

Limited by the type of data collected in the CA Natural Diversity Database.

Species	Status	BRANCH MTN	CHIMNEY CANYON	HUASNA PEAK	LA PANZA	LOS MACHOS HILLS	MIRANDA PINE MTN
Animals							
American badger	SSC			x			
California red-legged frog	**FT**					**x**	
prairie falcon	Special Animal (Nesting)	x	x	x	x	x	x
two-striped garter snake	SSC					x	
western pond turtle	SSC			x		x	

Steelhead Streams	No. Santa Maria River is a steelhead stream. Twitchell Dam creates a barrier to access Alamo Creek. (NMFS, 2009)
Stream Habitat Inventory	None identified.
Fish Passage Barriers	Bridge with potential passage constraints at Alamo Creek, unknown status, PAD # 736587.00000 (CDFW Passage Assessment Database, viewed 2013)
Designated Critical Habitat	Yes; Steelhead trout. The Southern California Steelhead Trout Recovery Plan calls out recovery actions related to management of Twitchell Dam. Alamo Creek itself is not identified. (NOAA, 2009)
Habitat Conservation Plans	No source identified.
Other Environmental Resources	Los Padres National Forest Limited data.

Alamo Creek Watershed

	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo, U.S. Forest Service
	% Urbanized	0% (SLO County LUC)
	% Agricultural	29.5% (SLO County LUC)
	% Other	70.5% (64.45% open space and 6% rural lands) (SLO County LUC)
	Planning Areas	Huasna-Lopez and Shandon-Carrizo
	Potential growth areas	None identified.
	Facilities Present	Twitchell Dam for groundwater recharge and flood protection. (TWM, 2010)
	Commercial Uses	Extractive resource area (SLO County Extractive Resources shapefile)
	Demographics	
	Population	11; No cities or unincorporated communities. (U.S. Census Block, 2010)
	Race and Ethnicity	63.6% white, 36.4% latino, and 0% other (U.S. Census Block, 2010)
	Income	Approximately $100,000. (U.S. Census Tract, 2010) Census tract crosses multiple watersheds.
	Disadvantaged Communities	None. Approximately 4%. (U.S. Census Tract, 2010) Census tract crosses multiple watersheds.
	Water Supply	
	Water Management Entity	Twitchell Management Authority; individual wells. (TMA, 2010) No other source identified. Limited data.
	Groundwater	Yes; alluvial, Cuyama River Valley and Santa Maria Valley (SLO County Master Water Plan, 2012)
	Surface Water	Yes; Twitchell Reservoir supplies about 20,000 AF of recharge to the Santa Maria Groundwater Basin annually. (SMVWCD, 2010)
	Imported Water	No source identified.
	Recycled/ Desalinated Water	No source identified.
	Infiltration Zones	No source identified.
	Water Budget	No source identified.

Alamo Creek Watershed

	Water Uses	
	Beneficial Uses	*Alamo Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early Development (SPWN).(RWQCB, 2011)
	Other Unique Characteristics	
	Historic Resource	No source identified.
	Archeological Resources	There was a Chumash town called Tso at the time of European settlement (SB Museum of Natural History, viewed 2013). Limited data and low priority for this effort.
	Los Padres National Forest	As a part of the Los Padres National Forest, Santa Lucia District the watershed has two campgrounds, an off-highway vehicle area, and is open to general recreation. (U.S. Forest Service Map, 2011)
	Climate Change Considerations	
		See IRWMP, 2014 Section H. Climate Change Limited data and not watershed specific.

Watershed Codes

Cal Water/ DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3312.301206	3	Cuyama Valley	0	undefined	312.30	Stanley Mtn.	Sheep Creek
3312.301207	3	Cuyama Valley	0	undefined	312.30	Stanley Mtn.	Kennel Creek
3312.301205	3	Cuyama Valley	0	undefined	312.30	Stanley Mtn.	Alamo Creek
3312.301204	3	Cuyama Valley	0	undefined	312.30	Stanley Mtn.	Branch Creek
3312.301203	3	Cuyama Valley	0	undefined	312.30	Stanley Mtn.	Little Jollo Creek
3312.301202	3	Cuyama Valley	0	undefined	312.30	Stanley Mtn.	Lower Alamo Creek

Alamo Creek Watershed

Cal Water/ DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3312.301201	3	Cuyama Valley	0	undefined	312.30	Stanley Mtn.	Upper Alamo Creek
3312.301403	3	Cuyama Valley	0	undefined	312.30	Twitchell Reservoir	Upper Twitchell Reservoir
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- In 1772, Mission San Luis Obispo was established bringing ranching to the area.
- In 1936, Los Padres National Forest was established.
- In 1958, Twitchell Dam and Reservoir was constructed by the Army Corps of Engineers and the Bureau of Reclamation on behalf of the Santa Barbara County Water Agency. (TMA, 2010) The dam itself is in the Cuyama River Watershed and was constructed primarily for flood control and groundwater recharge.
- In 1997, the Logan Fire burned approximately 49,500 acres, some of which was in the upper watershed.(CDF, Strategic Fire Plan, 2012)
- In 2009, the La Brea Fire burned approximately 336,020 acres of which approximately 15% (50,403 acres) was in the Twitchell Reservoir watersheds. (CDF, Strategic Fire Plan, 2012)

Alamo Creek Watershed

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
Alamo Creek	Perennial	Yes; Fecal Coliform TMDL estimated date of completion 2021. (SWRCB, 2010)	Agriculture, grazing-related, natural sources (SWRCB, 2010)	See Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Sheep Creek	No source identified.	Not assessed.	No source identified.	No source identified.
Kennel Creek	No source identified.	Not assessed.	No source identified.	No source identified.
Branch Creek	No source identified.	Not assessed.	No source identified.	No source identified.
Little Jollo Creek	No source identified.	Not assessed.	No source identified.	No source identified.

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Cuyama Valley - Cuyama Valley Basin (portion)	10,667 AFY (San Luis Obispo County, Master Water Report, 2012)	Physical limitations. (San Luis Obispo County, Master Water Report, 2012)	No. (San Luis Obispo County, Master Water Report, 2012)	No. (RWQCB, Table 3-8, 2011)
*Santa Maria Valley - Orcutt Sub-basin	Unknown. (San Luis Obispo County, Master Water Report, 2012)	Unknown. (San Luis Obispo County, Master Water Report, 2012)	Unknown. (San Luis Obispo County, Master Water Report, 2012)	Yes. (RWQCB, Table 3-8, 2011)
*Santa Maria Valley – Santa Maria Management Area (SMVMA) (portion)	124,000 -125,100 AFY of groundwater production in the basin. For the portion of the Santa Maria Valley in San Luis Obispo County, dependable yield, was estimated between 11,100	Water quality and water rights. (San Luis Obispo County, Master Water Report, 2012)	Yes for Sulfate and TDS (San Luis Obispo County, Master Water Report, 2012)	Yes for basin. No objective for management area. (RWQCB, Table 3-8, 2011)

Alamo Creek Watershed

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
	AFY and 13,000 AFY prior to the formal establishment of the SMVMA (DWR 2002).			

*Note: The Santa Maria Valley Groundwater Basin has been adjudicated. In 2005, the Superior Court of California entered a Judgment for a basin-wide groundwater litigation case that defined three basin management areas. These management areas are the Northern Cities Management Area (NCMA), the Nipomo Mesa Management Area (NMMA), and the Santa Maria Valley Management Area (SMVMA), which are used herein for planning by the County of San Luis Obispo. The Judgment incorporated a Stipulated Settlement which was made binding by the Court on the signatories, with a declaratory judgment and physical solution adjudged and decreed in the Judgment after Trial, dated January 25, 2008.

Groundwater Quality Description: Sulfate and TDS are the primary constituents of concern within the San Luis Obispo County portion of the SMVMA. TDS concentrations collected in four area wells between 1992 and 1998 ranged from approximately 750 mg/L to 1,300 mg/L, with a median of 1,200 mg/L, which exceeds the State drinking water standard upper limit of 1,000 mg/L. All the sulfate concentrations exceeded the recommended drinking water standard of 250 mg/L and some exceeded the upper limit of 500 mg/L. TDS was up to 800 mg/L greater in the alluvial aquifer, when compared to the underlying Paso Robles Formation aquifers. Nitrates are also a concern in several areas of the valley, although the majority of groundwater sample results in the San Luis Obispo County portion of the valley are below the MCL (DWR 2002).

Primary Issues

Issue	Potential Causes	Referenced from
Sedimentation of Twitchell Reservoir	Natural and upland erosion primarily from Cuyama River	TMA, 2010

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

Alamo Creek Watershed

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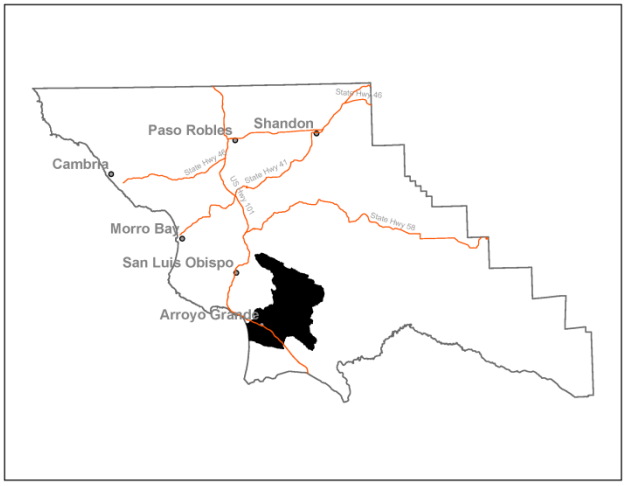
Arroyo Grande Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay HU 10	South Coast WPA 7	95,998 acres	Pacific Ocean	Santa Maria River Valley; Arroyo Grande Creek sub-basin; Edna Valley	County of San Luis Obispo City of Arroyo Grande City of Grover Beach Community of Oceano Los Padres National Forest Pismo State Beach

Photo by: N. Smith



Description:

The Arroyo Grande Creek Watershed is a coastal basin located in southern San Luis Obispo County. The drainage rises to a maximum elevation of approximately 3,100 feet above sea level. The watershed includes the tributaries of Tally Ho (Corbett), Tar Springs and Los Berros Creeks. Meadow Creek is a remnant marsh drainage system that enters Arroyo Grande Creek, just upstream of the confluence with the ocean. Arroyo Grande Creek empties into an estuary adjacent to the Oceano lagoon.

The watershed is dominated by agricultural land uses including vineyards, ranches and row crops. The urban core of the City of Arroyo Grande is at the confluence of Tally Ho Creek with Arroyo Grande Creek. Other land uses include Lake Lopez Reservoir and a regional airport in Oceano.

Watershed Plans:

Arroyo Grande Creek Watershed Management Plan (CCSE, 2009)

Arroyo Grande Creek Watershed

Characteristics:

	Physical Setting	
	Rainfall	15 – 28 inches (NRCS, 2010)
	Air Temperature	Summer Range (August 1981-2010): 54° - 73° F Winter Range (December 1981-2010): 39° - 63° F At Santa Maria Public Airport, CA. (NOAA National Climatic Data Center, viewed 2013) Limited data in watershed.
	Geology Description	The Arroyo Grande Creek, Carpenter Creek, Tar Springs Creek, and Vasquez Creek sub watersheds consist of steep moderately infiltrative early to mid-Tertiary headwaters – category # 8. The Wittenberg Creek sub watershed consists of steep pre-Quaternary, non-infiltrative headwaters with steep moderately infiltrative early to mid-Tertiary valley-category # 5. The Los Berros Creek sub watershed consists of steep pre-quaternary non-infiltrative headwaters with a flat highly infiltrative Quaternary valley-category # 3. (Stillwater Sciences, 2013) The Arroyo Grande Creek watershed lies at a structural and geomorphic transition between the north-northwest trending Coast Ranges and the west trending Transverse Ranges and has been described by Nitchman (1988) and Namson and Davis (1990) as an active fold and thrust belt. The lower watershed occurs within a geomorphic province known as the Pismo Basin that is bound on the northeast by the West Huasna Fault Zone and on the southwest by the Santa Maria River Fault Zone. The Wilmar Avenue Fault Zone also dissects the lower watershed, running parallel to the Highway 101 corridor. The lower watershed is primarily underlain by sedimentary and volcanic rocks from the Cenezoic age though portions of the watershed in the vicinity of Lopez Dam are melange and serpentine rocks from the Franciscan Formation. The sedimentary or pyroclastic nature and relatively young age of much of the underlying bedrock material results in the presence of highly erodible, friable material that is unconsolidated and easily weathered. Dune formations and extensive alluvial deposits in the valley floor of the mainstem and tributary channels also results in high erosion potentials. The alluvium primarily consist of unconsolidated, poorly bedded, poorly sorted to sorted sand, gravel, silt, and clay, with cobbles and boulders.(Swanson Hydrology &Geomorphology, 2004) Water supply aquifers are within Holocene alluvial deposits in Arroyo Grande Valley, which is drained by Arroyo Grande Creek. The alluvial deposits reach approximately 100 feet thick (DWR, 2002).

Arroyo Grande Creek Watershed

		Recharge to the sub-basin comes primarily from seepage from Arroyo Grande Creek (including Lopez Reservoir releases) and tributaries, deep percolation of precipitation, and residential/agricultural return flows. (Master Water Plan, 2012)
	Hydrology	
	Stream Gage	Yes; USGS 11141280 at Lopez Creek near Arroyo Grande (1967 - present, active) and USGS/County 11141500 Arroyo Grande Creek at the City of Arroyo Grande (1940 – 1986 by USGS 1986 - present by County, active). The County has total of 9 active stream flow gages in the watershed. There are 5 USGS stream gage stations discontinued (Stetson Engineering, 2004).
	Hydrologic Models	Yes; Swanson Hydrology & Geomorphology used a HEC-RAS to study the flood control channel in 2005. The County Public Works Department uses a model to plan.
	Peak Flow	4,620 - 5,400 cfs at USGS 11141500 (1940-1986, change in management to County) (USGS, viewed 2013). The 100 year discharge estimates are 19,500 cfs (Swanson Hydrology & Geomorphology, 2005).
	Base Flow	11 – 19 cfs at USGS 11141500 (1940 – 1986, change in management to County) (USGS viewed 2013) It is unknown whether gage was placed to capture base flows accurately. Many stream gages are installed as alert systems for peak flows.
	Flood Reports	Yes; Arroyo Grande Creek Erosion, Sedimentation and Flood Alternatives Study (Swanson Hydrology & Geomorphology, 2006); Arroyo Grande Creek Channel Waterway Management Plan (Waterways Consulting, 2010) The County manages Zone 1/1A Flood Control and Water Conservation District along the lower Arroyo Grande Creek including the channel and associated levees and flap gates for flood protection. (SLOCountyWater.org, viewed 2013)
	Biological Setting	
	Vegetation Cover	Primarily non-native annual grassland, buckbrush and chamise chaparral, and coast live oak forest. Contains some central coastal scrub, beach and coastal dune, agricultural land, and urban land. (SLO County vegetation shapefile, 1990) Dune scrub and foredune vegetation are present in coastal areas. Dune wetlands and willow woodlands are present in back dune areas. Riparian vegetation is present along Meadow Creek and Arroyo Grande Creek, primarily consisting of arroyo willow. (Althouse and Meade, Inc. 2013).

	Limited spatial data. No alliance level vegetation mapping was available for the entire County.
Invasive Species	Largemouth bass, Black Crappie, Green Sunfish, English ivy, Cape ivy, *Arundo donax,* pampas grass, castor bean, and bullfrog. (CCSE, 2009 and Cindy Cleveland, personal communication, 2013) Ice plant, veldt grass, and blue gum eucalyptus are present at the coast. English ivy, Himalayan blackberry, and cotoneaster are problems in Arroyo Grande Creek near downtown Arroyo Grande (Althouse and Meade, 2013). Limited data and no spatial data.
Special Status Wildlife and Plants	*Key*: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. Data is limited by the CA Natural Diversity Database.

Common Name	Status	ARROYO GRANDE NE	CALDWELL MESA	LOPEZ MTN	NIPOMO	OCEANO	SANTA MARGARITA LAKE	TAR SPRING RIDGE
Animals								
arroyo chub	SSC							x
California condor	**FE; SE**						**x**	**x**
California red-legged frog	**FT**	**x**			**x**	**x**		**x**
coast horned lizard	SSC	x						
Coast Range newt	SSC							x
foothill yellow-legged frog	SSC			x				
mimic tryonia (=California brackish water snail)	SA					x		
monarch butterfly	SA					x		
Oso Flaco flightless moth	SA					x		
Oso Flaco robber fly	SA					x		

prairie falcon	SA (Nesting)	x	x	x	x	x	x	x
Common Name	**Status**	**ARROYO GRANDE NE**	**CALDWELL MESA**	**LOPEZ MTN**	**NIPOMO**	**OCEANO**	**SANTA MARGARITA LAKE**	**TAR SPRING RIDGE**
steelhead - south/central California coast DPS	**FT**	**x**			**x**	**x**		**x**
western pond turtle	SSC	x				x		
western snowy plover	**FT**					**x**		
white sand bear scarab beetle	SA					x		
	Plants							
Blochman's leafy daisy	CRPR 1B.2					x		
California saw-grass	CRPR 2B.2					x		
coastal goosefoot	CRPR 1B.2					x		
crisp monardella	CRPR 1B.2					x		
Cuesta Ridge thistle	CRPR 1B.2			x				
dune larkspur	CRPR 1B.2					x		
Eastwood's larkspur	CRPR 1B.2			x			x	x
Gambel's water cress	**FE; ST; CRPR 1B.1**					**x**		
Hardham's evening-primrose	CRPR 1B.2						x	
Hoover's bent grass	CRPR 1B.2	x		x		x		
La Graciosa thistle	**FE; ST; CRPR 1B.1**					**x**		
La Panza mariposa-lily	CRPR 1B.3						x	
marsh sandwort	**FE; SE; CRPR 1B.1**					**x**		
Nipomo Mesa lupine	**FE; SE; CRPR 1B.1**					**x**		
Ojai fritillary	CRPR 1B.2						x	
Pecho manzanita	CRPR 1B.2			x				

Arroyo Grande Creek Watershed

	Pismo clarkia	**FE; SR; CRPR 1B.1**	**x**				**x**		
	Common Name	**Status**	**ARROYO GRANDE NE**	**CALDWELL MESA**	**LOPEZ MTN**	**NIPOMO**	**OCEANO**	**SANTA MARGARITA LAKE**	**TAR SPRING RIDGE**
	Robbins' nemacladus	CRPR 1B.2							x
	San Bernardino aster	CRPR 1B.2					x		
	San Luis mariposa-lily	CRPR 1B.2	x						
	San Luis Obispo County lupine	CRPR 1B.2				x			x
	San Luis Obispo monardella	CRPR 1B.2					x		
	San Luis Obispo owl's-clover	CRPR 1B.2	x						
	sand mesa manzanita	CRPR 1B.2					x		
	Santa Lucia manzanita	CRPR 1B.2	x		x				
	Santa Margarita manzanita	CRPR 1B.2	x				x		x
	straight-awned spineflower	CRPR 1B.3	x						
	umbrella larkspur	CRPR 1B.3		x					x
	Steelhead Streams	Yes; Arroyo Grande Creek. (NMFS, 2012) Los Berros (CEMAR, 2008). There are rainbow trout populations above Lopez Dam (CEMAR, 2008)							
	Stream Habitat Inventory	Yes; Completed 2004 for Arroyo Grande Creek as landowner access allowed by California Conservation Corps. None completed for other tributaries. (CCSE, 2009) Data limited to mainstem.							
	Fish Passage Barriers	Modify County Stream Gage at stream mile 4.98; Replace Cecchetti Road Culvert at steam mile 8, Temporary Barrier, PAD # 700030.00000; Modify Abandoned Dam at stream mile 9.5; Modify Concrete Dam at stream mile 5.82; Remove Debris at Huasna Road; Modify Los Berros Creek Gage at stream mile 5.6; Replace Los Berros							

		Creek Culvert; Modify Tar Springs Creek Road Crossing at stream mile 0.5; Replace Biddle Park Culvert at stream mile 10.9, Temporary Barrier, PAD # 707002.00000; Hwy 101 culvert at Meadow Creek, Unknown Status, PAD # 732175.00000; Little Falls Natural Falls, Total Barrier, PAD # 735375.00000; Big Falls Canyon, Total Barrier, PAD # 735376.00000; Big falls Canyhon upper falls, Total Barrier, PAD # 735377.00000; Beaver Dam at Arroyo Grande Creek, Temporary Barrier, PAD # 736888.00000; Rip-Rap dam at Arroyo Grande Creek, Unknown Status, PAD # 736890.00000; Concrete dam at Arroyo Grande Creek, Partial Barrier, PAD # 736891.00000; Concrete Grade Control weir at Arroyo Grande Creek, Temporary Barrier, PAD # 736893.00000; Los Berros Creek rd. crossing/ gauging station at Los berros creek, Temporary Barrier, PAD # 736894.00000; Low Flow Concrete Structure at Branch Mil Rd. on Tar Springs Creek, Total barrier, PAD # 736895.00000; Culvert Replacement at Los Berros Creek, Partial barrier, PAD # 736896.00000; Dam at Lopez drive on Arroyo Grande Creek, Temporary Barrier, PAD # 718830; Road Crossing at Valley Road and Los Berros Creek, Partial Barrier, PAD # 712029. (CDFW Passage Assessment Database, viewed 2013 and CCSE, 2009)
	Designated Critical Habitat	Yes; South-Central California Coast Steelhead Trout , California Condor, California red-legged frog, La Grasiosa thistle, Western snowy plover (USFWS Critical Habitat Portal, viewed 2013)
	Habitat Conservation Plans	Yes; In development by County of San Luis Obispo for California red-legged frog and Steelhead trout along mainstem Arroyo Grande Creek. (USFWS Critical Habitat Portal, viewed 2013)
	Other Environmental Resources	Coastal Zone, Lopez Lake, Santa Lucia Wilderness, Los Padres National Forest, Oceano Dunes, Dunes Lakes, Meadow Creek
	Land Use	
	Jurisdictions and Local Communities	City of Arroyo Grande, City of Grover Beach, City of Pismo Beach, Town of Oceano, County of San Luis Obispo
	% Urbanized	17.6% (6.1% urban and 11.1% residential with less than 1% commercial, industrial and public facilities) (SLO County LUC).
	% Agricultural	45.6% (SLO County LUC)
	% Other	36.8% (17.91% open space, 5.02% recreation, and 13.82% rural lands) (SLO County LUC).
	Planning Areas	San Luis Bay Coastal, San Luis Bay Inland, South County Inland, Huasna-Lopez, Los Padres, San Luis Obispo
	Potential growth areas	City of Arroyo Grande, Oceano, Los Berros Village Area, Halcyon
	Facilities Present	Lopez Dam on Arroyo Grande Creek; Terminal Reservoir and Lopez Water Treatment Plant; South San Luis Obispo County Wastewater Treatment Plant with discharge to Ocean; Oceano Airport; Arroyo

Arroyo Grande Creek Watershed

		Grande Flood Control Channel
	Commercial Uses	Cropland in Cienega Valley; Recreation and tourism at Lake Lopez, City of Arroyo Grande, State Park Beaches and the Oceano Dunes; Grieb Ranch Quarry for dimension stone, Oceano Sand Company Pit for specialty sand.(SLO County, Extractive resources shapefile)
	Demographics	
	Population	47,830 in watershed. 17,249, 36.1% in the City of Arroyo Grande. 13,156, 27.5% in the City of Grover Beach. 7,286, 15.2% in the Community of Oceano (U.S. Census Block, 2010).
	Race and Ethnicity	Watershed: 70% Caucasian (33,490), 22.9% Latino (10,949) 3.2% Asian (1,517), 2.5% 2 or more races/ethnicity (1,213) and 1% Other (77). (U.S. Census Tract, 2010). Arroyo Grande: Caucasian, representing 76.9%. Latinos represent 15.7% of the total population in the watershed. The remaining races each represent less than 4%, including African American, American Indian, Pacific Islander, and Asian(U.S. Census, 2010). Grover Beach: Caucasian, representing 62.3%. Latinos represent 29.2% of the total population in Grover Beach. The remaining races each represent less than 4%, including African American, American Indian, Pacific Islander, and Asian(U.S. Census, 2010). Oceano: Caucasian, representing 47.4%. Latinos represent 47.8% of the total population in Oceano. The remaining races each represent less than 3%, including African American, American Indian, Pacific Islander, and Asian (U.S. Census, 2010).
	Income	MHI $63,535 in watershed (U.S. Census Tracts, 2010). MHI $64,900 in Arroyo Grande(U.S. Census, 2010) MHI $47,708 in Grover Beach (U.S. Census, 2010) MHI $37,219 in Oceano (U.S. Census, 2010) Census tract covers multiple watersheds.
	Disadvantaged Communities	Yes, Oceano; 5% of individuals are below poverty level in watershed (U.S. Census Tract, 2010). 7.2% of individuals are below poverty level in Arroyo Grande. 14.3% of individuals are below poverty level in Grover Beach. 14.1% of individuals are below poverty level in Oceano. (US Census, 2010) Census tract covers multiple watersheds.
	Water Supply	
	Water Management	Zone 3 Flood Control and Water Conservation District; City of Arroyo Grande; City of Grover Beach; Oceano Community Services District;

Arroyo Grande Creek Watershed

	Entities	Northern Cities Management Area participants including City of Pismo Beach, City of Arroyo Grande, City of Grover Beach, Oceano Community Services District, small public water systems, and residential and agricultural overlying users.
	Groundwater	Yes; alluvial, Arroyo Grande Valley and Santa Maria Valley Basins (SLO County, 2012)
	Surface Water	Yes; Lake Lopez is operated for municipal water supply storing 49,400 acre-feet and downstream irrigation water supply. Average annual diversion in 1969 through 1996 was about 4,630 acre-feet (Stetson Engineering, 2004).
	Imported Water	Yes; State Water enters the watershed and serves the Oceano Community Services District which has considered selling its surplus (in surplus years) to surrounding cities.
	Recycled/ Desalinated Water	No source identified. South San Luis Obispo County Sanitation District may look into the feasibility of recycled wate.
	Infiltration Zones	Arroyo Grande Creek by releases from Lake Lopez. Other areas undetermined. Limited data.
	Water Budget	None to date for entire watershed. A water budget is available for the Northern Cities Management Area (NCMA TG, 2012)
	Water Uses	
	Beneficial Uses	*Arroyo Grande Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN). *Arroyo Grande Estuary* – Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Shellfish Harvesting (SHELL) (RWQCB, 2011) *Dunes Lakes* – Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early Development (SPWN).

Arroyo Grande Creek Watershed

	Other Unique Characteristics	
	Historic Resources	The City of Arroyo Grande has a building on the National Register of Historic Places.
	Archeological Resources	There were Chumash towns called Chimoli, Chiliqin, and Stemeqtatimi at the time of European settlement (SB Museum of Natural History, viewed 2013). Limited data and low priority for this effort.
	Los Padres National Forest	The Los Padres National Forest, Santa Lucia District in the watershed includes one campground, portions of the Santa Lucia Wilderness and general recreation.
	Climate Change Considerations	
		State climate change maps show sea level affecting the City of Grover Beach and town of Oceano with inundation areas along Meadow Creek and the historic Los Berros Creek (USGS, Cal-Adapt, viewed 2013). See IRWMP, 2014 Section H. Climate Change Limited data and not local.

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.310101	3	Arroyo Grande	1	Oceano	310.31	Lopez Lake	Vasquez Creek
3310.310102	3	Arroyo Grande	1	Oceano	310.31	Lopez Lake	Wittenberg Creek
3310.310103	3	Arroyo Grande	1	Oceano	310.31	Lopez Lake	Arroyo Grande Creek
3310.310104	3	Arroyo Grande	1	Oceano	310.31	Lopez Lake	Clapboard Canyon
3310.310105	3	Arroyo Grande	1	Oceano	310.31	Lopez Lake	Big Falls Canyon
3310.310206	3	Arroyo Grande	1	Oceano	310.31	Grover City	Guaya Canyon
3310.310204	3	Arroyo Grande	1	Oceano	310.31	Grover City	Carpenter Canyon

Arroyo Grande Creek Watershed

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.310201	3	Arroyo Grande	1	Oceano	310.31	Grover City	Tarspring Creek
3310.310205	3	Arroyo Grande	1	Oceano	310.31	Grover City	Cienega Valley
3310.310203	3	Arroyo Grande	1	Oceano	310.31	Grover City	Los Berros Creek
3310.310202	3	Arroyo Grande	1	Oceano	310.31	Grover City	Los Berros Canyon
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- Chumash Indians are thought to have lived in the Lopez Valley as long ago as 2000 years. Four major villages were within the Lopez Valley, including the Chmoli and Chojuale villages.
- In 1772, Mission San Luis Obispo was established. Canada del Trigo, now Lopez Canyon, supplied wheat to Mission San Luis Obispo. Soon after the mission's founding, the padres established a garden and plantation on the plain of Arroyo Grande Creek where they raised corn, beans, potatoes and other vegetables.
- In the early 1800's, the first white settlers move to the valley and begin a dairy and prune orchard at the junction of Arroyo Grande and Lopez Creeks.
- Around 1899, over fourteen oil companies bored for oil in areas including Bore Porter Huasna Ranch, Phoenix Canyon, Records Ranch, Rosa Porter Ranch, Mrs. Flora Harloe Huasna Ranch, the upper valleys and in the town of Arroyo Grande.
- Between 1862 - 2000 there were approximately numerous flood years (Honeycutt, 2000)
- In 1929, fire season burned thousands of acres of AG watershed in Lopez, Clapboard, Tar Springs, and Phoenix canyons.
- In 1930, Plowed Hillside Farms washed out with every heavy rain; Corralitas, Corbett, Carpenter, and Oak Park Canyons. Oak Park Canyon pea farmers have to build brush and straw dykes at the head of the slopes. Civilian Conservation Corps (CCC) build drainage ditches and terraces to control runoff near Noyes Road and east of Printz Road. CCC stabilized hills in Carpenter Canyon-Poorman Canyon. (Honeycutt, 2000)
- In 1957, US Forest Service Intensifies fire prevention steps in Los Padres National Service. (Honeycutt)
- Early 1960s, Oceano wastewater treatment plant is constructed.
- In 1961, construction of the flood control channel was finished.
- In 1968, Lopez Dam completed; Dam filled to capacity and spills April 1969.
- In 2001, Flood Zone 1/1A Advisory Committee convenes following March 2001 levee breaches.

Arroyo Grande Creek Watershed

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
Arroyo Grande	Perennial (ptn)	Yes; E coli., Fecal coliform TMDL estimated date of completion 2021.	Agriculture, grazing related sources, urban runoff/storm sewers	See Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Los Berros	Ephemeral	Yes; Chloride,Nitrate, Sodium TMDL estimated date of completion 2021. (SWRCB, 2010)	Agriculture, grazing related sources, source unknown	See Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Tar Springs	Undetermined	Not assessed.	Undetermined.	See Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Corbett Creek	Undetermined	Not assessed.	Undetermined.	No source identified.

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Arroyo Grande Valley Sub-basin of the Santa Maria Basin	No estimated safe yield value reported. (San Luis Obispo County, Master Water Report, 2012)	water quality issues, environmental demand, and water rights The shallow alluvial deposits are typically more susceptible to drought impacts. (San Luis Obispo County, Master Water Report,	Yes; see description below. (San Luis Obispo County, Master Water Report, 2012)	No. No objective for sub-basin. (RWQCB, Basin Plan, Table 3-8, 2011)

Arroyo Grande Creek Watershed

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
		2012)		
Northern Cities Management Area of Santa Maria Valley Basin	9,500 AFY (San Luis Obispo County, Master Water Report, 2012)	Water quality, environmental demand and water rights. (San Luis Obispo County, Master Water Report, 2012)	Yes; see description below. (San Luis Obispo County, Master Water Report, 2012)	No. No objective for sub-basin. (RWQCB, Basin Plan, Table 3-8, 2011)

*Note: The Santa Maria Valley groundwater basin has been adjudicated. In 2005, the Superior Court of California entered a Stipulated Judgment for a basin-wide groundwater litigation case that defined three basin management areas encompassing approximately 256 square miles. These management areas are the Northern Cities Management Area, the Nipomo Mesa management Area, and the Santa Maria Management Area, which are used herein for planning by the County of San Luis Obispo. The Stipulated Judgment was adopted, with a declaratory judgment and physical solution adjudged and decreed in the Judgment after Trial, dated January 25, 2008. The three DWR sub-basins included herein as separate basin components are outside of the adjudicated area.

Groundwater Quality Description: Historical groundwater quality in the Arroyo Grande Valley Sub-basin, based on samples collected in the 1980's, shows a progressive deterioration in a downstream direction. The general mineral character of groundwater in the valley was calcium-magnesium bicarbonate upstream of the Tar Springs Creek confluence and calcium-magnesium sulfate downstream of the confluence. The downstream section overlies a zone of multiple faults that may contribute highly mineralized water, along with irrigation water returns. With one exception, TDS, sulfate, and chloride concentrations in groundwater samples from wells in the upstream section met drinking water standards and the water was classified as suitable for agricultural irrigation. In the downstream section, TDS from wells typically exceeded 1,500 mg/l (the short term maximum drinking water standard), with sulfate concentrations exceeding the 500 mg/l upper limit for drinking water. The water was also classified as marginal to unsuitable for agricultural irrigation (DWR, 2002).

Northern Cities Management Area: Six of 35 wells tested exceeded the State drinking water standard for nitrate, which has been a concern in the area. In the Arroyo Grande Plain, historical data between 1950 and 1987 indicate that the chemical character was typically either calcium magnesium sulfate or calcium magnesium sulfate-bicarbonate. Approximately three-quarters of the wells sampled on the Arroyo Grande Plain had TDS values between 500-1,500 mg/l, with half the wells reporting sulfate concentrations greater than 250 mg/l (DWR, 2002).

Arroyo Grande Creek Watershed

Primary Issues

Issue	Potential Causes	Referenced from
Surface Water Quality - Temperature	Lack of riparian canopy	CCSE, 2009
Surface Water Quality - Nutrients and Dissolved Oxygen	Increase in urban land use	CCSE, 2009
Surface flow Quantity	Natural, groundwater diversions, impoundment	CCSE, 2009
Fish Passage Barriers	Road crossings, culverts, dams and other structures	CCSE, 2009
Erosion and Sedimentation	Natural, "hungry water" from dam release, lowering base flow level of mainstem, increased impervious areas, unvegetated roads and fields	CCSE, 2009
Flood Management	Loss of floodplain and encroachment of development, sedimentation in the flood control channel results in reduced capacity	CCSE, 2009 and Swanson Hydrologic, 2006

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

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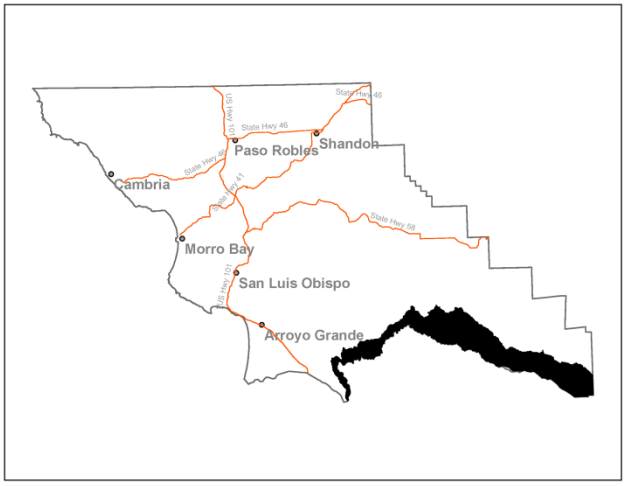
Cuyama River Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Santa Maria HU 12	Cuyama Valley WPA 9 Huasna Valley WPA 8	140,408 acres in County; 729,600 acres total	Santa Maria River	Cuyama Valley; Santa Maria Valley	County of San Luis Obispo Los Padres National Forest

Photo by: N. Smith



Description:

The Cuyama River Watershed starts in Ventura County. The river generally flows northward, and then in a westerly direction to a point of confluence with the Sisquoc River near the town of Garey where it joins the Santa Maria River. The San Luis Obispo County line approximately follows the Cuyama River. A portion of the northern tributaries and part of the Cuyama River are within the southwestern part of San Luis Obispo County. The northern tributaries rise to a maximum elevation of almost 4,950 feet above sea level at Caliente Mountain with their headwaters in the La Panza and Caliente Mountain Ranges.

Twitchell Reservoir is near the downstream end of the Cuyama River Watershed, formed behind Twitchell Dam.

The watershed is dominated by rural and agricultural land uses including ranches, orchards, vineyards and row crops. Other land uses include oil and gas production, Los Padres National Forest and Bureau of Land Management lands.

Watershed Plans:

None.

Cuyama River Watershed

Characteristics:

	Physical Setting	
	Rainfall	7 – 24 inches in County 7 – 30 inches for entire watershed (NRCS Precip 1981-2010)
	Air Temperature	Summer Range (August 1981-2010): 50°- 82° F Winter Range (December 1981-2010): 36°- 66° F At Twitchell Dam, CA. (NOAA National Climatic Data Center, viewed 2013)
	Geology Description	The Chimney Canyon sub watershed consists of steep pre-quaternary non-infiltrative headwaters and a steep moderately infiltrative early to mid-Tertiary valley – category #5. The Buckhorn Canyon sub watershed consists of moderately steep to steep pre-quaternary non-infiltrative headwaters – category #9. (Bell, personal communication, 2013) The Cuyama Valley was formed by a down faulted block that is bordered on the north by the Morales and Whiterock faults, and on the south by the South Cuyama and Ozena faults. The basin has been filled with continental deposits resulting from the active faults that border the valley to the north and south, and by alluvium deposited by the Cuyama River. These deposits coupled with the semi-arid climate of the region have created a wide distribution of soil types (Roehrdanz, et al, 2009).
	Hydrology	
	Stream Gage	Yes; USGS 11136800 Cuyama River below Buckhorn Canyon (1959-2007, discontinued); USGS 11138100 Cuyama River below Twitchell Dam (1959-1983, discontinued). Limited data.
	Hydrology Models	Yes; There is a USGS HEC-HMS used to calculate reservoir water surface elevation on Twitchell Dam. (TMA, 2010) Hydrologic model does not include entire watershed.
	Peak Flow	17,800 - 26,200 cubic feet per second occurred at the USGS 11136800 Cuyama River below Buckhorn Canyon, near Santa Maria (TMA, 2010). The Cuyama River is characterized as “flashy” with relatively rapid response to rainfall and little or no flow in its reaches during the summer months. The annual mean flow is approximately 27.8 cfs, however during the 1998 floods flow rates reached 26,200 cfs (SB County Water Agency, 2000).

Cuyama River Watershed

	Base Flow	Average flow of only 18 cfs at the Cuyama River near Santa Maria River gage just above Twitchell Reservoir (USGS 11137000) for the period 1941–1962 (Stillwater Sciences, 2012) It is unknown if these gages were placed to accurately capture base flows. Many gages are placed as alert systems and only capture peak flows.
	Flood Reports	Yes; Twitchell Project Manual (TMA, 2010); Floods in Cuyama Valley, California (USGS, 1998)
	Biological Setting	
	Vegetation Cover	Primarily sage scrub and salt brush scrub with some chaparral (chamise, semi-desert, buckbrush), non-native grassland, blue oak woodland, coast live oak forest, orchard or vineyard and agricultural lands. (SLO County, vegetation shapefile, 1990) Annual grasslands, chaparral and scrub habitats, blue oak woodlands and pinyon-juniper woodlands dominate the area, but rare habitats such as saltbush scrub, alkaline marshes, and riparian forests are also present. (Roehrdanz, et al, 2009) Willow, cottonwood, mulefat, tamarisk, and arrowweed are present in riparian habitat along the river (Althouse and Meade, Inc, 2013). Limited spatial data. No alliance level vegetation mapping was available for the entire County.
	Invasive Species	No source identified.
	Special Status Wildlife and Plants	*Key:* FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank, CALS – California Lichen Society, (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. Limited by the type of data collected in the CA Natural Diversity Database.

Cuyama River Watershed

Common Name	Status	BALLINGER CANYON	BRANCH MTN	CALIENTE MTN	CHIMINEAS RANCH	CHIMNEY CANYON	CUYAMA	CUYAMA PEAK	ELKHORN HILLS	HUASNA PEAK	MIRANDA PINE MTN	NEW CUYAMA	PAINTED ROCK	PEAK MTN	TAYLOR CANYON	TWITCHELL DAM	WELLS RANCH
Animals																	
American badger	SSC					x	x			x					x		
blunt-nosed leopard lizard	**FE; SE; FP**	**x**					**x**	**x**				**x**					
California condor	**FE; SE**	**x**															
California red-legged frog	**FT**														**x**	**x**	
coast horned lizard	SSC				x							x			x		
giant kangaroo rat	**FE; SE**	**x**		**x**			**x**					**x**		**x**	**x**		
Kern primrose sphinx moth	**FT**	**x**		**x**			**x**	**x**	**x**			**x**		**x**			**x**
long-eared owl	SSC														x		
longhorn fairy shrimp	**FE**		**x**		**x**						**x**				**x**		
Nelson's antelope squirrel	**ST**	**x**					**x**					**x**					
prairie falcon	SA (Nesting)	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
San Joaquin kit fox	**FE; ST**	**x**		**x**			**x**				**x**	**x**		**x**	**x**		
San Joaquin whipsnake	SSC														x		
silvery legless lizard	SSC										x						
Swainson's hawk	**ST**						**x**		**x**			**x**					
tricolored blackbird	SSC (Nesting)						x								x		
Tulare grasshopper mouse	SSC														x		
two-striped garter snake	SSC					x					x						
vernal pool fairy shrimp	**FT**		**x**								**x**						
western pond turtle	SSC										x			x			
western spadefoot	SSC														x		
Plants																	
woven-spored lichen	CALS Listed													x			

Cuyama River Watershed

Common Name	Status	BALLINGER CANYON	BRANCH MTN	CALIENTE MTN	CHIMINEAS RANCH	CHIMNEY CANYON	CUYAMA	CUYAMA PEAK	ELKHORN HILLS	HUASNA PEAK	MIRANDA PINE MTN	NEW CUYAMA	PAINTED ROCK	PEAK MTN	TAYLOR CANYON	TWITCHELL DAM	WELLS RANCH
Blakley's spineflower	CRPR 1B.3											x		x			
California jewel-flower	**FE; SE; CRPR 1B.1**	**x**					**x**					**x**					
Hoover's eriastrum	**Federally Delisted; CRPR 4.2**						**x**										
Jared's pepper-grass	CRPR 1B.2																x
Kern mallow	**FE; CRPR 1B.1**	**x**		**x**			**x**	**x**							**x**		
La Panza mariposa-lily	CRPR 1B.3				x	x									x		
Lemmon's jewel-flower	CRPR 1B.2	x			x		x	x				x			x		
Lost Hills crownscale	CRPR 1B.2						x		x			x					x
Miles' milk-vetch	CRPR 1B.2															x	
Munz's tidy-tips	CRPR 1B.2						x										
oval-leaved snapdragon	CRPR 4.2			x	x												x
pale-yellow layia	CRPR 1B.1	x		x			x								x		
Parish's checker-bloom	**SR; CRPR 1B.2**													**x**			
round-leaved filaree	CRPR 1B.1			x	x										x		
San Gabriel manzanita	CRPR 1B.2										x			x	x		
San Joaquin woolly-threads	**FE; CRPR 1B.2**	**x**		**x**			**x**					**x**			**x**		
showy golden madia	CRPR 1B.1				x		x					x			x		
stinkbells	CRPR 4.2			x			x										x
umbrella larkspur	CRPR 1B.3				x	x									x		

	Steelhead Streams	No. Santa Maria River is a steelhead stream. Twitchell Dam creates a barrier to access. (NMFS, 2009)
	Stream Habitat Inventory	No source identified.
	Fish Passage Barriers	Bridge with potential passage constraints at the Cuyama River, Status Unknown, PAD # 736548.00000; Alamo Creek Bridge with

Cuyama River Watershed

		potential passage constraints, Status Unknown, PAD # 736590.00000; Bridge with potential passage constraints at the Cuyama River, Status unknown, PAD # 736651.00000; Culvert at Hwy 166 and Cuyama River, Status Unknown, PAD #736667.00000; Twitchell Dam at the Cuyama River, Total Barrier, PAD #718831.00000; Road Crossing at the Cuyama River, Partial Barrier, PAD # 723386.00000 (CDFW Passage Assessment Database, 2013).
	Designated Critical Habitat	None. (USFWS Critical Habitat Portal, viewed 2013)
	Habitat Conservation Plans	No source identified.
	Other Environmental Resources	Los Padres National Forest, Carrizo National Monument, The Nature Conservancy has identified the Cuyama Valley as a potential priority region due to its ecological richness, rare plant communities, and its potential to function as a wildlife corridor between the conserved lands of the Carrizo Plain National Monument and Los Padres National Forest.
	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo.
	% Urbanized	0% in County (SLO County LUC)
	% Agricultural	44% in County (SLO County LUC)
	% Other	56% (12.47% open space and 43.48% rural lands) in County (SLO County LUC)
	Planning Areas	Shandon-Carrizo, Los Padres, Huasna-Lopez, South County Inland
	Potential growth areas	No source identified.
	Facilities Present	Twitchell Dam Limited data.
	Commercial Uses	Agriculture Limited data.
	Demographics	
	Population	128 (U.S. Census Block, 2010)
	Race and Ethnicity	21.9% Caucasian (28), 76.6% Latino (98), and 0.8% Other. (U.S. Census Block, 2010)
	Income	MHI $60,676 (U.S. Census Tract 127.02, 2010) Census tracts are very large crossing multiple watersheds.
	Disadvantaged Communities	No; 7% of individuals are below poverty (U.S. Census Tract 127.02, 2010) Census tracts are very large crossing multiple watersheds.

Cuyama River Watershed

	Water Supply	
	Water Management Entities	Twitchell Management Authority Limited data.
	Groundwater	Yes; alluvial, Cuyama Valley, Santa Maria Valley (SLO County, 2012)
	Surface Water	Yes; Twitchell Dam recharges the Santa Maria Valley groundwater basin. (TMA, 2010)
	Imported Water	No source identified.
	Recycled/ Desalinated Water	No source identified.
	Infiltration Zones	Seepage of river flows through the river bed along the Santa Maria River and along the lower reaches of the Cuyama and Sisquoc Rivers is the primary source of recharge to the Santa Maria Groundwater Basin. Percolation of river flows through unconsolidated, permeable alluvial deposits account for approximately 75-85% of the average annual recharge to the groundwater basin. A significant portion of the groundwater recharge attributable to river bed seepage is due to the operation of the Twitchell Dam. (SLO County & SB County, 1998) Limited data.
	Water Budget	A water budget was developed for the Cuyama Valley that acknowledges limited data (Roehrdanz, et. al, 2009). The County of Santa Barbara and U.S Geological Society is developing the *Geohydrology and Water Availability of the Cuyama Valley, California,* expected to be completed in 2014. Limited data.
	Water Uses	
	Beneficial Uses	*Cuyama River, upstream of Twitchell Reservoir* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early Development (SPWN). (RWQCB, 2011)
	Other Unique Characteristics	
	Historic Resources	No source identified.
	Archeological Resources	There were Chumash towns called Wenexe'l and Sxaliwilimu' at the time of European settlement (SB Museum of Natural History,

		viewed 2013). Limited data and low priority for this effort.
	Other	No source identified.
	Climate Change Considerations	
		See IRWMP, 2014 Section H. Climate Change Limited data and not watershed specific.

Watershed Codes

Calwater/ DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning Watershed Name	CDF Watershed Name
3312.301006	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Carrizo Canyon
3312.301009	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Brown Canyon
3312.301002	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Moon Canyon
3312.301003	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Taylor Canyon
3312.301004	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Miranda Canyon
3312.301007	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Sycamore Creek
3312.301008	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Gypsum Canyon
3312.301010	3	Cuyama Valley	0	undefined	312.30	Gifford Spring	Pearson Spring
3312.301101	3	Cuyama Valley	0	undefined	312.30	Porter Peak	Rice Ranch
3312.301105	3	Cuyama Valley	0	undefined	312.30	Porter Peak	Buckhorn Canyon
3312.301106	3	Cuyama Valley	0	undefined	312.30	Porter Peak	Clear Creek
3312.300902	3	Cuyama Valley	0	undefined	312.30	Chalk Mtn.	Lower Aliso Canyon
3312.300905	3	Cuyama Valley	0	undefined	312.30	Chalk Mtn.	Post Canyon
3312.300907	3	Cuyama Valley	0	undefined	312.30	Chalk Mtn.	Lower Schoolhouse Canyon
3312.300908	3	Cuyama Valley	0	undefined	312.30	Chalk Mtn.	Morales Canyon

Cuyama River Watershed

Calwater/ DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning Watershed Name	CDF Watershed Name
3312.300909	3	Cuyama Valley	0	undefined	312.30	Chalk Mtn.	Morales Canyon Oil Field
3312.301403	3	Cuyama Valley	0	undefined	312.30	Twitchell Reservoir	Upper Twitchell Reservoir
3312.301404	3	Cuyama Valley	0	undefined	312.30	Twitchell Reservoir	Chimney Canyon
3312.301405	3	Cuyama Valley	0	undefined	312.30	Twitchell Reservoir	Canada de los Coches
3312.301406	3	Cuyama Valley	0	undefined	312.30	Twitchell Reservoir	Mouth of Cuyama River
3312.300804	3	Cuyama Valley	0	undefined	312.30	New Cuyama	Sulfur Canyon
3312.300803	3	Cuyama Valley	0	undefined	312.30	New Cuyama	Padrones Canyon
3312.300802	3	Cuyama Valley	0	undefined	312.30	New Cuyama	Quail Canyon
3312.300805	3	Cuyama Valley	0	undefined	312.30	New Cuyama	New River
3312.300801	3	Cuyama Valley	0	undefined	312.30	New Cuyama	Stubblefield Road
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- In 1958, Twitchell Dam and Reservoir was constructed by the U.S. Army Corps of Engineers and the Bureau of Reclamation on behalf of the Santa Barbara County Water Agency. (TMA, 2010)

Cuyama River Watershed

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
Cuyama River (above Twitchell Reservoir)	Ephemeral	Yes on 303d list for Boron, Chloride, Electrical Conductivity, Fecal Coliform, pH, Sodium. TMDL estimated date of completion 2021. (SWRCB, 2010)	Agriculture, grazing-related, municipal point sources, natural , resource extraction (SWRCB, 2010)	Table 3 of Instream Flow Assesment (Stillwater Sciences, 2013)

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Cuyama Valley Basin	9,000 - 13,000 AFY (San Luis Obispo County, Master Water Report, 2012)	Physical Limitations. (San Luis Obispo County, Master Water Report, 2012) DWR identifies it as in "critical condition of overdraft" (Roehrdanz, et al., 2009).	Yes (San Luis Obispo County, Master Water Report, 2012)	No. (RWQCB, Table 3-8, 2011)
Santa Maria Valley Basin	Adjudicated. (San Luis Obispo County, Master Water Report, 2012)			Yes. (RWQCB, Table 3-8, 2011)

*Note: The Santa Maria Valley Groundwater Basin has been adjudicated. In 2005, the Superior Court of California entered a Judgment for a basin-wide groundwater litigation case that defined three basin management areas. These management areas are the Northern Cities Management Area (NCMA), the Nipomo Mesa Management Area (NMMA), and the Santa Maria Valley Management Area (SMVMA), which are used herein for planning by the County of San Luis Obispo. The Judgment incorporated a Stipulated Settlement which was made binding by the Court on the signatories, with a declaratory judgment and physical solution adjudged and decreed in the Judgment after Trial, dated January 25, 2008.

Cuyama River Watershed

Groundwater Quality Description: Analyses of water from three public supply wells show an average TDS content of 858 mg/L and a range from 755 to 1,000 mg/L. USGS analyses show TDS content as high as 1,750 mg/L. Because of constant cycling and evaporation of irrigation water in the basin, water quality has been deteriorating (DWR 2003; SBCWA 1996; SBCWA 2001). Groundwater near the Caliente Range has high salinity, which has been attributed to seepage out of the basement marine rocks. Nitrate content reached 400 mg/L in some shallow wells (DWR 2003; County of Santa Barbara Planning and Development Department, 1994). (SLO County, 2012)

Primary Issues

Issue	Potential Causes	Referenced from
Sedimentation of Twitchell Reservoir	Natural and upland erosion	TMA, 2010
Groundwater Supplies	Natural, water extraction	Roehrdanz, et al., 2009

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

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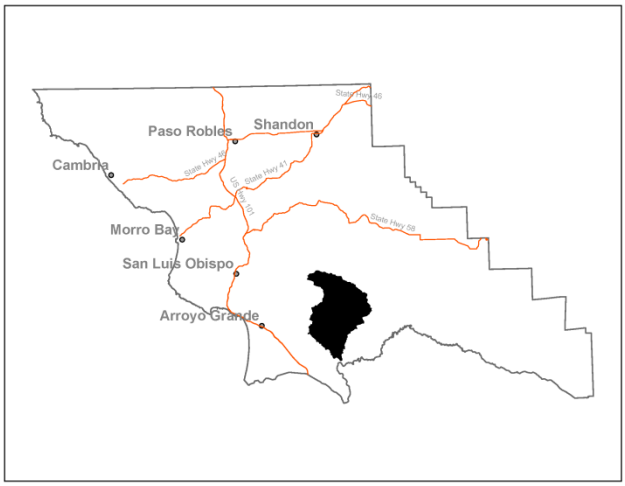
Huasna River Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Santa Maria HU 12	Huasna Valley WPA 8	75,122 acres	Cuyama River at Twitchell Reservoir	Huasna Valley	County of San Luis Obispo; Los Padres National Forest



Description:

The Huasna River Watershed is an inland basin located in southern San Luis Obispo County. The drainage rises to a maximum elevation of approximately 3,000 feet above sea level. Huasna River flows to the Cuyama River at the downstream end of the Huasna River watershed above Twitchell Dam, which is in the Cuyama River Watershed downstream. Huasna River watershed has a number of tributary basins with their headwaters in the Santa Lucia and La Panza Mountain Ranges: Huasna Creek, Carrie Creek, Haystack Creek and Arroyo Seco Creek.

Agriculture is the principal land use in the area, ranging from small irrigated farms to large cattle ranches. A substantial portion of the area consists of hilly and mountainous land with chaparral and oak woodlands, suitable only for limited grazing. Other land uses includes oil exploration and recreation onthe Los Padres National Forest.

Watershed Plans:

None

Huasna River Watershed

Characteristics:

	Physical Setting	
	Rainfall	18 – 27 inches (NRCS Precipitation,1981-2010)
	Air Temperature	Summer Range (August 1981-2010): 50°- 82° F Winter Range (December 1981-2010): 36°- 66° F At Twitchell Dam (CA-NOAA National Climatic Data Center, viewed 2013)
	Geology Description	The Huasna Creek, Deer Canyon, and Joaquin Canyon sub watersheds consist of steep moderately infiltrative early to mid-Tertiary headwaters – category #8. The Haystack Canyon, Carrie Creek, Lower Arroyo Seco, and Upper Arroyo Seco sub watersheds consist of steep pre-Quaternary non-infiltrative headwaters; steep moderately infiltrative early to mid-Tertiary valley – category #5. The Salt Creek sub watershed consists of steep pre-Quaternary non-infiltrative headwaters – category #13 (Bell, personal communication, 2013) The Huasna River basin contains thick mostly marine sedimentary Tertiary deposits that lay on top of a Jurassic-Cretaceous complex. The Huasna Basin lies between the West Huasna fault zone on the west and the East Huasna fault zone on the east (SLO County, 2012). The principal water bearing unit is Quaternary age alluvium. (DWR,2003)
	Hydrology	
	Stream Gage	No. USGS 11137900 Huasna River near Arroyo Grande, CA (1960-2012, discontinued) and USGS 11138000 Huasna River near Santa Maria, CA (1930-1961, discontinued). (USGS, viewed 2013) Limited data and no current stream gage.
	Hydrology Models	No source identified.
	Peak Flow	10,000 - 11,400cfs at USGS 11138000. (USGS, viewed 2013)
	Base Flow	6.5 – 7.10 cfs at USGS 11138000.(USGS, viewed 2013) It is unknown if these gages were placed to accurately capture base flows. Many gages are placed as alert systems and only capture peak flows.
	Flood Reports	Yes; Floods in Cuyama Valley, California (USGS, 1998). Though normally dry, wetter winters have seen the [Twitchell] reservoir inundate the lower five miles of Huasna Valley …, rendering areas below the 652-foot elevation unsuitable for permanent

		buildings. Upstream portions of these watercourses (and other creeks in the planning area) are potential flood hazard areas during intense or prolonged rainfall.(San Luis Obispo County, Huasna-Lopez Area Plan, 2003) Limited data.
	Biological Setting	
	Vegetation Cover	Primarily buck brush chaparral, oak woodland consisting of coast live oak and blue oak, foothill pine-oak woodland with some non-native grassland, venturan coastal sage scrub and permanently flooded lacustrine (SLO County vegetation shapefile, 1990) Annual grassland, foothill oak woodland, chaparral and coastal scrub, anthropogenic and ruderal, freshwater marsh wetland (MRS, 2012) Forest Service Calveg data from 2002 for this watershed describe agricultural vegetation types, as well as wildland tree and shrub communities, with some grasslands. Shrub types include mixed chaparral with some scrub oak, ceanothus chaparral, chamise chaparral, and sagebrush scrub. Forest and woodland types include oak woodlands with blue oak, coast live oak, and valley oak components as well as foothill woodland with mixed oak and foothill pine, and coulter pine. Willow riparian scrub is noted along drainages. (Calveg R5 Zone 6, EvegTile42_97_02, 2007) Limited spatial data. No alliance level vegetation mapping was available for the entire County. The Forest Service data is based on 2002 aerials.
	Invasive Species	Ripgut brome, wild radish, Russian thistle, Italian thistle, sweet fennel, bull thistle, bur clover, prickly wild lettuce, horseweed? (MRS, 2012) Limited data.
	Special Status Wildlife and Plants	Paniculate tarplant is listed by the California Native Plant Society (CNPS) but is not listed by USFWS or CDFG as threatened or endangered. Well's Manzanita were documented and it is on the CNPS List. (MRS, 2012) Key: FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. Limited by the type of data collected in the CA Natural Diversity Database.

Huasna River Watershed

Common Name	Status	CALDWELL MESA	CHIMNEY CANYON	HUASNA PEAK	LOS MACHOS HILLS	NIPOMO	POZO SUMMIT	SANTA MARGARITA LAKE	TAR SPRING RIDGE
Animals									
American badger	SSC			x					
California condor	**FE; SE**							**x**	**x**
California red-legged frog	**FT**			**x**					
prairie falcon	SA (Nesting)	x	x	x	x	x	x	x	x
two-striped garter snake	SSC	x							
Plants									
Hardham's evening-primrose	CRPR 1B.2							x	
La Panza mariposa-lily	CRPR 1B.3							x	
Miles' milk-vetch	CRPR 1B.2			x		x			
Palmer's mariposa-lily	CRPR 1B.2	x			x				
San Luis Obispo County lupine	CRPR 1B.2	x				x			x
Santa Margarita manzanita	CRPR 1B.2	x		x		x			x
umbrella larkspur	CRPR 1B.3	x							

Steelhead Streams	No. Santa Maria River is a steelhead stream. Twitchell Dam creates a barrier to access Huasna River. (NMFS, 2009)
Stream Habitat Inventory	None identified.
Fish Passage Barriers	None identified. Twitchell Dam creates a barrier to access Huasna River. (NMFS, 2009) Limited data. Large downstream fish barrier may not warrant upstream barrier surveys.
Designated Critical Habitat	None identified.
Habitat Conservation Plans	None identified.
Other Environmental Resources	Los Padres National Forest

Huasna River Watershed

	Land Use	
	Jurisdictions & Local Communities	None.
	% Urbanized	0% (SLO County LUC)
	% Agricultural	64.4% (SLO County LUC)
	% Other	35.6% (21.46% open space and 14.12% rural lands)(SLO County LUC)
	Planning Areas	South County-Inland, Huasna-Lopez, Los Padres
	Potential growth areas	No source identified.
	Facilities Present	Private wells and septic systems Limited data.
	Commercial Uses	Huasna River Pit – sand and gravel (SLO County Mines); Proposed oil processing facilities, Recreation; agriculture – grazing Limited data.
	Demographics	
	Population	237 (U.S. Census Block, 2010)
	Race and Ethnicity	65.4% Caucasian (155), 11.8% Latinos (28), 3.5% Other, 2.5% mixed race (6) (U.S. Census Block, 2010)
	Income	MHI $99,115 (U.S. Census Tract, 2010). Census tract is large covering portions of multiple watersheds.
	Disadvantaged Communities	None; 4% of individuals were below poverty level (U.S. Census Tract, 2010). Census tract is large covering portions of multiple watersheds.
	Water Supply	
	Water Management Entities	Twitchell Management Authority Limited data.
	Groundwater	Yes; alluvial and Huasna Valley (SLO County, 2012)
	Surface Water	No public reservoirs. Twitchell Dam recharges the Santa Maria Valley groundwater basin.
	Imported Water	No source identified.
	Recycled/ Desalinated Water	No source identified.
	Infiltration Zones	No source identified.

Huasna River Watershed

	Water Budget	None to date.
	Water Uses	
	Beneficial Uses	*Huasna River* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE).(RWQCB, 2011)
	Other Unique Characteristics	
	Historic Resources	No source identified.
	Archeological Resources	There was a Chumash town called Wasna at the time of European settlement (SB Museum of Natural History, viewed 2013). Limited data and low priority for this effort.
	Los Padres National Forest	The Los Padres National Forest, Santa Lucia District in the upper watershed is open to general recreation and includes the Garcia Wilderness. (U.S Forest Service Map, 2011)
	Climate Change Considerations	
		See IRWMP, 2014 Section H. Climate Change Limited data and not watershed specific.

Watershed Codes

CalWater /DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3312.301301	3	Cuyama Valley	0	undefined	312.30	Bald Mtn.	Haystack Canyon
3312.301302	3	Cuyama Valley	0	undefined	312.30	Bald Mtn.	Carrie Creek
3312.301303	3	Cuyama Valley	0	undefined	312.30	Bald Mtn.	Salt Creek
3312.301304	3	Cuyama Valley	0	undefined	312.30	Bald Mtn.	Joaquin Canyon
3312.301305	3	Cuyama Valley	0	undefined	312.30	Bald Mtn.	Stony Creek

Huasna River Watershed

CalWater /DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3312.301308	3	Cuyama Valley	0	undefined	312.30	Bald Mtn.	Deer Canyon
3312.301306	3	Cuyama Valley	0	undefined	312.30	Tassajara Hot Springs	Lower Arroyo Seco
3312.301307	3	Cuyama Valley	0	undefined	312.30	Tassajara Hot Springs	Upper Arroyo Seco
3312.301401	3	Cuyama Valley	0	undefined	312.30	Twitchell Reservoir	Huasna Creek
3312.301402	3	Cuyama Valley	0	undefined	312.30	Twitchell Reservoir	Lower Twitchell Reservoir
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- The watershed is near the boundary of the areas historically occupied by Obispeno Chumash and the Playanos Salinan (MRS, 2012).
- The area was made part of the Mission San Luis Obispo holdings
- In 1843, title to 22,153 acres of the Huasna Rancho was granted to Isaac Sparks. Upon his death the property was divided among is daughters Flora Harloe, Rosa Porter and Sally Harkness.
- In 1870's the first hunt for oil was conducted in the region.
- In 1899, the first hole was bored for oil by Fredrick Harkness on the Porter Ranch. Other holes were bored in the 1900's on the Records Ranch and Rosa Porter Ranch. Waives of oil exploration occurred in the 1930's and again in the 1950's. (MRS, 2012)
- In 1958, Twitchell Dam and Reservoir was constructed by the Army Corps of Engineers and the Bureau of Reclamation on behalf of the Santa Barbara County Water Agency (TMA, 2010).

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources NP (non-point) MP (Major Point)	Environmental Flows
Huasna River	No source identified.	No. (SWRCB, 2010)	Not assessed. (SWRCB, 2010)	No source identified.
All Other Tribs	No source identified.	Not assessed. (SWRCB, 2010)	Not assessed. (SWRCB, 2010)	No source identified.

Huasna River Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Huasna Valley Basin	No existing data. (San Luis Obispo County, Master Water Report, 2012)	Physical Limitations and Water Quality Issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, (San Luis Obispo County, Master Water Report, 2012)	No historical water quality data. (San Luis Obispo County, Master Water Report, 2012)	No objective for the basin. (RWQCB, Table 3-8, 2011)

Groundwater Quality Description: No historical water quality data for the alluvial basin has been published in public documents or is available through the STORET Legacy Database. (SLO County, Master Water Report, 2012)

Primary Issues

Issue	Potential Causes	Referenced from
Sedimentation of Twitchell Dam	Natural and upland erosion primarily from Cuyama River.	TWA, 2010

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

Huasna River Watershed

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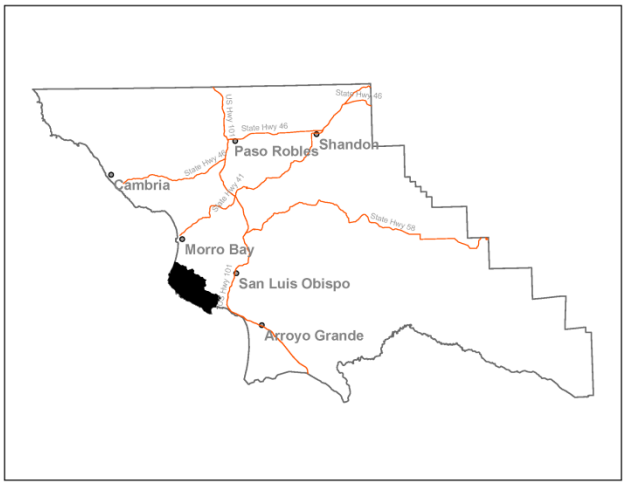
Irish Hills Coastal Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay HU 10	San Luis Obispo/ Avila WPA 6	27,922 acres	Pacific Ocean	None	County of San Luis Obispo CA Department of Parks and Recreation



Description:

The Irish Hills Coastal Watersheds are located in the San Luis Range, along the remote San Luis Obispo County coastline between the communities of Los Osos and Avila Beach. The drainages rise to a maximum elevation of 1,819 feet above sea level at Saddle Peak. The major creeks flowing to the Pacific Ocean and with their headwaters in the Coastal Range Mountains are Hazard Canyon, Islay Creek, Coon Creek, Diablo Creek, Irish Creek, Rattlesnake Creek, Hanford Creek and Wild Cherry Canyon.

The watershed is dominated by grazing lands some in conservation or agricultural easements and public lands. Other land uses include a regional nuclear power plant, passive recreation, natural resource preservation and limited oil drilling.

Watershed Plans:

Irish Hills Coastal Watershed Conservation Plan (Coastal Conservancy, 2001)

Irish Hills Coastal Watersheds

Characteristics:

	Physical Setting	
	Rainfall	17 – 25 inches (NRCS Precipitation 1981-2010) 18 inches Mean Annual (SLO County Water)
	Air Temperature	Summer Range (August 1981-2010): 56° - 69° F Winter Range (December 1981-2010): 45°- 65° F At Morro Bay Fire Station, Morro Bay, CA. (NOAA National Climatic Data Center, viewed 2013)
	Geology Description	The Islay and Coon Creek sub watersheds consists of steep moderately infiltrative early to mid-Tertiary headwaters – category #8. The Diablo Creek and Pecho Creek sub watersheds consists of steep moderately infiltrative early to mid-Tertiary headwaters; flat pre-Q moderately infiltrative valley - category #11. (Bell, Ethan, personal communication, 2013) The wave-cut marine terraces, rocky headlands, and the rugged to rolling mountains and valleys are the result of millions of years of erosion of land that has been uplifted, folded, and tilted. Most of the oldest rocks are derived from the Franciscan Formation that forms the basement of most of the Coast Ranges. The Franciscan Formation is a result of the deformation of ancient sea floor sediments caught in a deep-water trench created by two colliding tectonic plates some 29 million years ago. Overlain on the Franciscan Formation are younger formations of sedimentary rock that are composed of mudstone deposited when the remains of tiny marine organisms such as diatoms and plankton drifted to the bottom and mixed with silt and sand. The mud solidified into thick layers of diatomite, clay porcellanite, dolomite, and chert. These sedimentary rocks and the basement rock itself were worn down again as the range was uplifted, although not uniformly throughout the area. As a result, sedimentary rock formations of many different ages and character occur. A number of faults occur within or in the vicinity. The Rinconada fault is the major northwest-striking fault east of the Indian Knob area. (Coastal Conservancy, 2001)
	Hydrology	
	Stream Gage	None.
	Hydrologic Models	None.
	Peak Flow	No source identified.
	Base Flow	No source identified.

Irish Hills Coastal Watersheds

	Flood Reports	No source identified.
	Biological Setting	
	Vegetation Cover	Non-native grassland with some coastal scrub, coast live oak forest, blue-blossom chaparral, chamise and beaches and coastal dunes. (SLO County vegetation shapefile, 1990) Nearshore habitats, Coastal scrub, Maritime Chaparral, grassland, Bishop pine forest, oak woodland (Coastal Conservancy, 2001) Grasslands are present primarily along coastal margins, and the northern edge of the watershed. Scrub and woodland habitats are present throughout the watershed. Coastal bluff scrub is present on marine terraces at the coast edge in parts of this watershed. (Althouse and Meade, Inc., 2013). Limited spatial data. No alliance level vegetation mapping was available for the entire County.
	Invasive Species	Veldt grass, ice plant, blue bum eucalyptus (Althouse and Meade, Inc. 2013).
	Special Status Wildlife and Plants	*Key:* FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Limited by the type of data included in CA Natural Diversity Database.

Common Name	**Status**	**MORRO BAY SOUTH**	**PISMO BEACH**	**PORT SAN LUIS**
	Animals			
American badger	SSC		x	
black legless lizard	SSC	x		x
California red-legged frog	**FT**		**x**	
coast horned lizard	SSC		x	
globose dune beetle	SA		x	
monarch butterfly	SA		x	
prairie falcon	SA (Nesting)		x	
sandy beach tiger beetle	SA		x	

Irish Hills Coastal Watersheds

Common Name	Status	MORRO BAY SOUTH	PISMO BEACH	PORT SAN LUIS
steelhead - south/central California coast DPS	**FT**		**x**	
tidewater goby	**FE**		**x**	
vernal pool fairy shrimp	**FT**		**x**	
western pond turtle	SSC		x	
western snowy plover	**FT**		**x**	
Plants/Lichen				
Arroyo de la Cruz manzanita	CRPR 1B.2	x		
beach spectaclepod	**ST**		**x**	
black-flowered figwort	CRPR 1B.2		x	
Blochman's dudleya	CRPR 1B.1		x	
Blochman's leafy daisy	CRPR 1B.2		x	
Brewer's spineflower	CRPR 1B.3		x	
Cambria morning-glory	CRPR 4.2		x	
Chorro Creek bog thistle	**FE; SE**		**x**	
Congdon's tarplant	CRPR 1B.1		x	
Eastwood's larkspur	CRPR 1B.2	x		x
Hoover's bent grass	CRPR 1B.2		x	x
Hoover's button-celery	CRPR 1B.1		x	
Indian Knob mountain-balm	**FE; SE**		**x**	
Jones' layia	CRPR 1B.2		x	
La Panza mariposa-lily	CRPR 1B.3		x	
marsh sandwort	**FE; SE**		**x**	

Irish Hills Coastal Watersheds

Common Name	Status	MORRO BAY SOUTH	PISMO BEACH	PORT SAN LUIS
mesa horkelia	CRPR 1B.1		x	
Morro manzanita	**FT**	**x**	**x**	**x**
most beautiful jewel-flower	CRPR 1B.2			x
mouse-gray dudleya	CRPR 1B.3		x	
Pecho manzanita	CRPR 1B.2	x	x	x
Pismo clarkia	**FE; SR**		**x**	
San Benito fritillary	CRPR 1B.2	x		
San Luis mariposa-lily	CRPR 1B.2		x	
San Luis Obispo County lupine	CRPR 1B.2		x	
San Luis Obispo owl's-clover	CRPR 1B.2	x	x	
San Luis Obispo sedge	CRPR 1B.2	x		
Santa Margarita manzanita	CRPR 1B.2	x	x	x
surf thistle	**ST**		**x**	

Steelhead Streams	No streams listed in the Steelhead Recovery Plan (NMFS, 2012). Islay Creek and Coon Creek (USFWS Critical Habitat Mapper, viewed 2013) Diablo Canyon (CEMAR, 2008)
Stream Habitat Inventory	None identified.
Fish Passage Barriers	Concrete Dam at Islay Creek, Total Barrier, PAD #711911.00000; Islay Falls at Islay Creek, Unknown, PAD #720498.00000 (CDFW Passage Assessment Database, viewed 2013)
Designated Critical Habitat	Yes; Steelhead Trout, Morro shoulderband snail, Morro Bay kangaroo rat, Western snowy plover (USFWS Critical Habitat Portal, viewed July 2013)
Habitat Conservation Plans	Yes; Morro shoulderband snail (USFWS Critical Habitat Portal, viewed July 2013)
Other Environmental Resources	Coastal Zone, Montana de Oro State Park, Irish Hills, Bishop Pine Forest Limited data.

Irish Hills Coastal Watersheds

	Land Use	
	Jurisdictions & Local Communities	County of San Luis Obispo
	% Urbanized	0% (SLO County LUC)
	% Agricultural	42.3% (SLO County LUC)
	% Other	57.7% (4.6% public facility, 27.85% recreation, and 25.26% rural land) (SLO County LUC)
	Planning Areas	San Luis Obispo, San Luis Bay Coastal, San Luis Bay Inland
	Potential growth areas	No source identified.
	Facilities Present	Diablo Canyon Power Plant and Water Treatment System, Private wells and septic systems Limited data.
	Commercial Uses	Diablo Nuclear Power Plant; Montana de Oro State Park; Beecham Red Rock Pit for decomposed granite (SLO County, extractive shapefile)
	Demographics	
	Population	17 (U.S. Census Block, 2010)
	Race and Ethnicity	76.5% Caucasian (13), 17.6% Latino (3), and 5.9% Asian (1) (U.S. Census Block, 2010)
	Income	$62,829 (U.S. Census Tract, 2010) Census tract covers multiple watersheds.
	Disadvantaged Communities	No; 3% of individual are below poverty (U.S. Census, 2010) Census tract covers multiple watersheds.
	Water Supply	
	Water Management Entity	No source identified.
	Groundwater	Yes; alluvial only.
	Surface Water	No public reservoirs.
	Imported Water	No source identified.
	Recycled/ Desalinated Water	Yes; Desalinated water is used at the Diablo Canyon Power Plant for cooling and on-site potable drinking water. (Prato, et al., 2002)
	Infiltration Zones	No source identified.

Irish Hills Coastal Watersheds

	Water Budget	None to date.
	Water Uses	
	Beneficial Uses	*Islay and Coon Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN). *Diablo Creek*– Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early Development (SPWN). (RWQCB, 2011)
	Other Unique Characteristics	
	Historic Resources	No source identified.
	Archeological Resources	Human habitation of the watershed dates back over 9,000 years as evidenced by analyses of hundreds of archaeological discoveries including several village sites, numerous thick deposits of refuse mounds, called middens, burial sites, and bedrock mortars and tools. A majority of these findings have been made near the creek mouths on the coastal terraces. The site near the Diablo Canyon Nuclear Power Plant is considered the County's most significant archaeological site. (Coastal Conservancy, 2001) There were Chumash towns called Tsikyiw and Chanu at the time of European settlement (SB Museum of Natural History, viewed 2013).
	Other	No source identified.
	Climate Change Considerations	
		State climate change maps do not show dramatic increased areas of inundation due to sea level rise along the coast (USGS,Cal-Adapt, viewed 2013). Climate change could affect bishop pine forest. The small patch in

Irish Hills Coastal Watersheds

this watershed is thought to persist in part due to supplemental moisture from fog drip

See IRWMP, 2014 Section H. Climate Change

Limited data and not local.

Watershed Codes

CalWater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.250001	2	Point Buchon	5	Point San Luis	310.25	undefined	Islay Creek
3310.250003	2	Point Buchon	5	Point San Luis	310.25	undefined	Coon Creek
3310.250002	2	Point Buchon	5	Point San Luis	310.25	undefined	Pecho Creek
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- Human habitation of the watershed dates back over 9,000 years as evidenced by analyses of hundreds of archaeological discoveries including several village sites, numerous thick deposits of refuse mounds, called middens, burial sites, and bedrock mortars and tools. A majority of these findings have been made near the creek mouths on the coastal terraces. The site near the Diablo Canyon Nuclear Power Plant is considered the County's most significant archaeological site.
- Pedro Unamuno, commander of a Manila galleon that sailed along the California coast in 1587, was the first to record the presence of San Luis Bay, noting the protected landing in the curve of the bay where Port San Luis is located today.
- In 1769, the diary of Franciscan Padre Juan Crespi provides the first written account of what is now the Irish Hills. (Coastal Conservancy, 2001)
- In 1772, a mission was established at San Luis Obispo.
- By the early 1840s, the lands in the vicinity of the Irish Hills begun to be divided among several great Spanish ranchos which were used for raising livestock for the lucrative hide-and-tallow trade.
- Between 1870 and 1890's, the pier, breakwater, a narrow gauge rail line, hotel and lighthouse were constructed.
- The Southern Pacific Railroad line, completed in 1894, shifted the focus of development and trade from coastal port towns of Port Harford (now called Port Son Luis) and Port Avila, to San Luis Obispo, on the inland rail route.

Irish Hills Coastal Watersheds

- Today the majority of the watershed is still used for cattle grazing. (Coastal Conservancy, 2001)

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Islay Creek	No source identified.	Not assessed. (SWRCB, 2010)	Not assessed. (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Coon Creek	No source identified.	No. (SWRCB, 2010)	Undetermined	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Diablo Creek	No source identified.	Not assessed. (SWRCB, 2010)	Not assessed. (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Port San Luis	Near-shore	No. (SWRCB, 2010)	Undetermined	Not applicable.

Watershed Health by Major Groundwater Basin

Groundwater Basin	**Estimated Safe Yield**	**Water Availability Constraints**	**Drinking Water Standard Exceedance**	**Water Quality Objective Exceedance**
None	None	No source identified.	No source identified.	None.

Groundwater Quality Description: None

Primary Issues

Issue	**Potential Causes**	**Referenced from**
Residential development; loss of habitat	Growth inducing roads	Coastal Conservancy, 2001

Irish Hills Coastal Watersheds

Issue	Potential Causes	Referenced from
Agricultural development; loss of habitat		Coastal Conservancy, 2001
Sedimentation and loss of riparian cover	Overgrazing	Coastal Conservancy, 2001
Proliferation of non-native species	Recreational uses, intentional planting	Coastal Conservancy, 2001
Habitat degradation	Recreational uses	Coastal Conservancy, 2001

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

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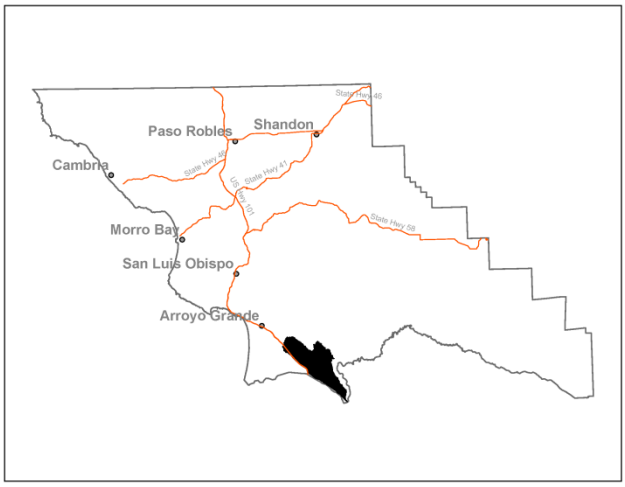
Nipomo – Suey Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Santa Maria HU 12	South County WPA 7	36,912 acres	Santa Maria River	Santa Maria Valley	County of San Luis Obispo Community of Nipomo



Description:

The Nipomo - Suey Watershed is a basin located in southern San Luis Obispo County and northern Santa Barbara County. The watershed rises to a maximum elevation of approximately 1,800 feet above mean sea level. The area includes two tributary basins to the Santa Maria River with their headwaters in the foothills of the Coast Range: Nipomo Creek and Suey Creek.

The watershed is dominated by agricultural land uses including ranches, row crops, greenhouses and orchards. Other land uses include residential.

Watershed Plans:

Nipomo Creek Watershed Management Plan (Land Conservancy of San Luis Obispo and CCSE, 2005)

Nipomo – Suey Creek Watershed

Characteristics:

	Physical Setting	
	Rainfall	15 – 20 inches (NRCS Precipitation, 1981-2010) 16-18 inches Mean Annual (SLOCountyWater.org)
	Air Temperature	Summer Range (August 1981-2010): 54°- 73° F Winter Range (December 1981-2010): 39°- 63° F At Santa Maria Public Airport, CA. (NOAA National Climatic Data Center, ncdc.noaa.gov, viewed 2013) Limited data, not watershed specific.
	Geology Description	Nipomo Creek consists of steep pre-Quaternary non-infiltrative headwaters and a flat highly infiltrative Quaternary valley – category #12. Suey Creek consists of moderately infiltrative early to mid-Tertiary headwaters and a flat Quaternary highly infiltrative valley – category #14. (Bell, personal communication, 2013) The bedrock of the watershed is typical of the Monterey and Franciscan formations of the California Coastal Range and is composed primarily of shale, chert, and other mélange components (Chipping, 1987).
	Hydrology	
	Stream Gage	No source identified.
	Hydrology Models	No source identified.
	Peak Flow	8,000 cfs Nipomo at confluence with Santa Maria River (Land Conservancy and CCSE, 2005, pg. 41); No source identified for Suey Creek Limited data based on FEMA study and not stream gage.
	Base Flow	800 – 925 acre feet average annual base runoff for Nipomo (DWR, 2002); No source identified for Suey Creek Limited data. It is unknown how this estimate was determined as there is no stream gage.
	Flood Reports	Yes; Nipomo Drainage and Flood Control Study (County of SLO, 2004). Areas at risk for flooding are Olde Town Nipomo (Land Conservancy and CCSE, 2005)
	Biological Setting	
	Vegetation Cover	Primarily agricultural land and non-native grassland with some coast live oak forest composed primarily of coast live oak and blue oak, buckbrush chaparral and venturan coastal sage scrub (SLO

	County, vegetation shapefile,1990) Oak forest, chaparral, and coastal scrub are more common in the eastern hills than elsewhere in the watershed. Coast live oaks interspersed with willows also line many of the drainages. (Althouse and Meade, Inc. 2013). Limited spatial data. No alliance level vegetation mapping was available for the entire County.
Invasive Species	Periwinkle (CCSE & Land Conservancy, 2005) English ivy and blue gum eucalyptus in some areas. Veldt grass in sandy soils (Althouse and Meade, 2013) Limited data.
Special Status Wildlife and Plants	Potential habitat for 14 special status species, [including] American badger, pallid bat, California red-legged frog, coast range newt, southern pacific pond turtle, silvery legless lizard, coast horned lizard, two-striped garter snake, sharp-shinned hawk, burrowing owl, white-tailed kite, southwestern willow flycatcher, prairie falcon and least bell's vireo is present in this watershed (SLO County, DANA EIR, 2012) Nipomo lupine and pismo clarkia (Althouse and Meade, 2013) *Key:* FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. Limited by the type of data collected in the CA Natural Diversity Database.

Common Name	**Status**	**NIPOMO**	**OCEANO**	**SANTA MARIA**	**HUASNA PEAK**	**TWITCHELL DAM**
	Animals					
American badger	SSC		x		x	
California black rail	**ST; FP**		**x**			
California least tern	**FE; SE**		**x**			
California red-legged frog	**FT**	**x**	**x**	**x**	**x**	**x**
California tiger salamander	**FT; ST**					**x**

Nipomo – Suey Creek Watershed

Common Name	Status	NIPOMO	OCEANO	SANTA MARIA	HUASNA PEAK	TWITCHELL DAM
coast horned lizard	SSC		x	x		
globose dune beetle	SA		x			
mimic tryonia (=California brackish water snail)	SA		x			
monarch butterfly	SA		x	x		
Morro Bay blue butterfly	SA		x			
Oso Flaco flightless moth	SA		x			
Oso Flaco patch butterfly	SA		x			
Oso Flaco robber fly	SA		x			
prairie falcon	SA (Nesting)	x			x	x
sandy beach tiger beetle	SA		x			
sharp-shinned hawk	SA (Nesting)		x			
silvery legless lizard	SSC		x			
steelhead - south/ central California coast DPS	**FT**	**x**	**x**			
tidewater goby	**FE**		**x**			
western pond turtle	SSC		x		x	
western snowy plover	**FT**		**x**			
western spadefoot	SSC	x		x		x
white sand bear scarab beetle	SA		x			
	Plant/Lichen					
beach spectaclepod	**ST**		**x**			
Blochman's leafy daisy	CRPR 1B.2		x			
California saw-grass	CRPR 2B.2		x			
coast woolly-heads	CRPR 1B.2		x			
coastal goosefoot	CRPR 1B.2		x			
crisp monardella	CRPR 1B.2		x			
dune larkspur	CRPR 1B.2		x	x		
Gambel's water cress	**FE; ST**		**x**			
Hoover's bent grass	CRPR 1B.2		x			
Kellogg's horkelia	CRPR 1B.1		x			

Nipomo – Suey Creek Watershed

Common Name	Status	NIPOMO	OCEANO	SANTA MARIA	HUASNA PEAK	TWITCHELL DAM
La Graciosa thistle	**FE; ST**		**x**			
La Panza mariposa-lily	CRPR 1B.3					
marsh sandwort	**FE; SE**		**x**			
Miles' milk-vetch	CRPR 1B.2	x			x	x
Nipomo Mesa lupine	**FE; SE**		**x**			
Pismo clarkia	**FE; SR**		**x**			
San Luis Obispo County lupine	CRPR 1B.2	x				
San Luis Obispo monardella	CRPR 1B.2		x			
sand mesa manzanita	CRPR 1B.2	x	x	x		
Santa Margarita manzanita	CRPR 1B.2	x	x		x	
short-lobed broomrape	CRPR 4.2		x			
surf thistle	**ST**		**x**			

Steelhead Streams	No. Historical information suggests that the Santa Maria River supported a steelhead run in the early 1900's. There is no evidence suggesting this species has been present for several decades. (CCSE & Land Conservancy, 2005 pg 56)
Stream Habitat Inventory	None. (CEMAR, 2008)
Fish Passage Barriers	Hwy 166 culvert at Suey Creek, Unknown Status, PAD # 736549.00000 (CDFW Passage Assessment Database, viewed 2013)
Designated Critical Habitat	None. (USFWS Critical Habitat Portal, viewed 2013)
Habitat Conservation Plans	None.(USFWS Critical Habitat Portal, viewed 2013)
Other Environmental Resources	No source identified.
Land Use	
Jurisdictions & Local Communities	Town of Nipomo
% Urbanized	7.3% (6.62% residential and less than 1% commercial, industrial and public facilities)(SLO County LUC)
% Agricultural	82.7% (SLO County LUC)

Nipomo – Suey Creek Watershed

	% Other	10% (9.71% rural lands and less than 1% open space and recreation) (SLO County LUC)
	Planning Areas	South County Inland
	Potential growth areas	Olde Town Nipomo, Los Berros Village area
	Facilities Present	Private wells and septic systems Limited data.
	Commercial Uses	Proposed oil processing facilities, Agriculture Limited data.
	Demographics	
	Population	4,160 in watershed (US Census Block, 2010); 16,714 in Nipomo (US Census, 2010)
	Race and Ethnicity	50.2% White (2,088), 44.4% Latino (1,845), 3.2% other in the watershed. (US Census Block, 2010) Caucasian, representing 54.3%. Latinos represent 39.8% of the total population in the watershed. The remaining races each represent less than 3%, including African American, American Indian, Pacific Islander, and Asian(US Census, 2010).
	Income	MHI $99,115 in watershed. (US Census Tract, 2010) MHI $61,265 in Nipomo (US Census Tract, 2010). Census tract crosses multiple watersheds.
	Disadvantaged Communities	No; 4% in watershed (US Census Tract, 2010); 9.6% of individuals are below poverty level in Nipomo (US Census, 2010). Census tract crosses multiple watersheds.
	Water Supply	
	Water Management Entity	Nipomo Community Services District; A large number of other water purveyors exist in the Nipomo Mesa area, but a source was not identified that records which are specifically in the Nipomo and Suey Creeks area. Limited data.
	Groundwater	Yes; alluvial and Santa Maria River Valley (SLO County, 2012)
	Surface Water	No public reservoirs.
	Imported Water	No; planned supplemental water from Santa Maria.
	Recycled/ Desalinated Water	No source identified.
	Infiltration Zones	No source identified.
	Water Budget	No source identified.

Nipomo – Suey Creek Watershed

	Water Uses	
	Beneficial Uses	*Nipomo Creek* –No beneficial uses identified *Suey Creek* –No beneficial uses identified. (RWQCB, 2011)
	Other Unique Characteristics	
	Historic Resources	Dana Adobe Limited data.
	Archeological Resources	There was a Chumash town called Nipumu at the time of European settlement (SB Museum of Natural History, viewed 2013). Limited data.
	Other	No source identified.
	Climate Change Considerations	
		See IRWMP, 2014 Section H. Climate Change Limited data and not watershed specific.

Watershed Codes

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3312.100104	1	Guadalupe	0	undefined	312.10	Nipomo	Nipomo Valley
3312.100102	1	Guadalupe	0	undefined	312.10	Nipomo	Suey Creek
3312.100103	1	Guadalupe	0	undefined	312.10	Nipomo	South of Twitchell Res.
3312.100101	1	Guadalupe	0	undefined	312.10	Santa Maria Valley	Nipomo Creek

Major Changes in the Watershed

- Nipomo Creek, during the Pliocene Epoch, flowed to the north joining Los Berros Creek and Arroyo Grande Creek. During the Quaternary period of the Holocene Epoch, rapid melting of glaciers caused changes in sea levels and rapid migration of shoreline dunes inland blocking the

flow of Nipomo Creek. The blockage created shallow lakes which broke thought the dunes of the Nipomo Mesa creating Black Lake Canyon. Further encroachment of sand eventually blocked this direct seaward exist of Nipomo. The subsequent build up of water in Nipomo valley found its weakest point to exit through a southern route becoming a tributary of the Santa Maria watershed (Ardoin/Bishop, 2004)

- 9,000 years. Most of the recorded Chumash cultural sites occur on the bluff of the mesa overlooking several creeks and in the foothills near larger tributaries. Sites on the Nipomo Mesa did not support as dense a population as neighboring coastal areas, and represent temporary occupations or small villages (Wheeler, 2005).
- In 1772, a mission was established in San Luis Obispo.
- The watershed is part of the Rancho Nipomo Mexican Land Grant awarded to Captain William Dana in 1835 bringing cattle and sheep to the area.
- In 1878, the Pacific Coast Railway was granted a 14 mile long strip by the Dana Brothers.
- The 1890's brought growth to the area with expanding agriculture and an influx of immigrant families to work the land.
- In 1936, Dorthea Lange chronicled the dire poverty of the migrant "pea pickers" in Nipomo, taking the iconic photo of the depression, Migrant Mother.

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Nipomo Creek	Perennial	Yes on 303d list for Fecal Coliform, Nitrate, Unknown Toxicity. TMDL estimated date of completion 2013. (SWRCB, 2010)	Agriculture, Collection System Failure, Grazing Related, Natural, Onsite Wastewater Systems (Septic), Urban Runoff(SWRCB, 2010)	No source identified.
Suey Creek	Unknown.	No. (SWRCB, 2010)	Undetermined. (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)

Nipomo – Suey Creek Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Santa Maria Valley – Nipomo Valley Subbasin	No existing yield. (San Luis Obispo County, Master Water Report, 2012)	Phyisical limitations and water quality. (San Luis Obispo County, Master Water Report, 2012)	No. (San Luis Obispo County, Master Water Report, 2012)	No objective for subbasin. (RWQCB, Table 3-8, 2011)
Santa Maria Valley- Nipomo Mesa Management Area	4,800-6,000 AFY(San Luis Obispo County, Master Water Report, 2012)	Physical limitations, water quality, and water rights. (San Luis Obispo County, Master Water Report, 2012)	No. (San Luis Obispo County, Master Water Report, 2012)	Yes. (RWQCB, Table 3-8, 2011)

Groundwater Quality Description: Water quality is variable across the [Nipomo Valley] subbasin, and the available data set does not distinguish between older alluvial wells and fractured rock wells, although most of the water represented is from the fractured rock reservoirs. TDS concentrations in groundwater samples collected from in 22 wells between 1962 and 2000 ranged from 750 mg/l to 1,300 mg/l; sulfate concentrations between 200 and 340 mg/l; chloride concentrations between 64 and 130 mg/l; and nitrate concentrations from non-detected to 3.4 mg/l. Groundwater is classified as suitable to marginal under water quality guideline for irrigated agriculture (DWR, 2002). (San Luis Obispo County, Master Water Report, 2012)

Primary Issues

Issue	Potential Causes	Referenced from
Flooding	Development in 100 year flood hazard zone, improperly sized culverts, lack of maintenance of existing drainage structures	CCSE&LC, WMP, 2005 pg 70 & 71
Habitat Fragmentation	Development	CCSE&LC, WMP, 2005
Surface Water Quality	Erosion, Sedimentation, bacteria from wildlife, domestic animals/livestock and urban areas, nutrients from	CCSE&LC, WMP, 2005 and RWQCB, Santa Maria River Watershed TMDLs, 2012
Invasive Species		CCSE&LC, WMP, 2005 pg 67
Groundwater Quantity	Connection to Santa Maria Groundwater Basin and Nipomo Mesa Management Area	CCSE&LC, WMP, 2005 pg 43 and 89 and NMMA, 2011

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

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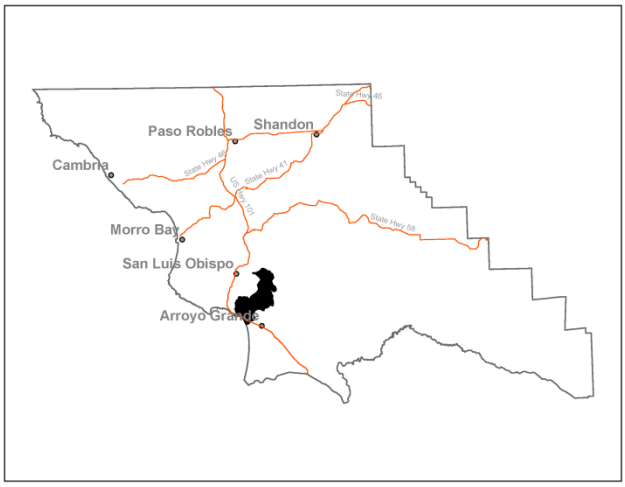
Pismo Creek Watershed

Hydrologic Unit Name	Water Planning Area	Total Acres	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay HU 10	South Coast WPA 7	26,030 acres	Pacific Ocean	Edna Valley; Pismo Creek Valley subbasin	County of San Luis Obispo City of Pismo Beach



Description:

The Pismo Creek Watershed is a coastal basin located in southern San Luis Obispo County. The drainage rises to a maximum elevation of almost 2,865 feet above mean sea level. Pismo Creek flows to the Pacific Ocean where a small estuary forms during the dry season. Pismo Creek watershed has three major tributary basins with their headwaters in the Santa Lucia Mountains: West Corral de Piedra, East Corral de Piedra, and Cañada Verde. A fourth significant tributary, Cuevitas Creek, enters Pismo Creek from the west in lower Price Canyon. The mouth of Pismo Creek is in the dune region known locally as Pismo Beach.

The watershed is dominated by agricultural land uses in its upper reaches including vineyards, ranches and row crops. The urban core of the City of Pismo Beach is adjacent to the Pismo Creek Estuary. Other land uses include a regional landfill, oil exploration and a wastewater treatment plant.

Watershed Plans:

Pismo Creek/ Edna Area Watershed Management Plan (CCSE, 2009)

Pismo Creek Watershed

Characteristics:

	Physical Setting	
	Rainfall	16 -29 inches (NRCS precipitation shapefile, 2010)
	Air Temperature	Summer Range (August 1981-2010): 54°- 73° F Winter Range (December 1981-2010): 39°- 63° F At Santa Maria Public Airport, CA (NOAA National Climatic Data Center, viewed 2013) Limited data.
	Geology Description	The West Corral de Piedra Creek, East Corral de Piedra Creek, and the Canada Verde Creek consist of moderately infiltrative early to mid-Tertiary headwaters and a flat Quaternary highly infiltrative valley – category #14. Pismo Creek consists of steep moderately infiltrative early to mid-Tertiary headwaters and a flat pre-Quaternary moderately infiltrative valley – category #11 (Bell, personal communication, 2013). The Pismo Creek watershed consists of three distinct geologic blocks separated by the Edna and Huasna fault zones. The upper watershed is underlain by Franciscan metasediments and ultrabasic rocks (mainly serpentines), and upper Cretaceous and early Tertiary sedimentary units. The Edna Valley comprises the middle third of the watershed, with a critical veneer of water-bearing sedimentary rocks typically 100 feet in thickness – ranging up to 300 feet -- overlying Franciscan and consolidated-sedimentary rocks (Balance Hydroligics, 2008 from Van Vlack, 1991). The Coastal San Luis Range is composed of mainly mid- to late-Miocene (late-Tertiary) consolidated sedimentary rocks of the Monterey and Pismo formations, plus coeval volcanic units of the Obispo formation, forming most of the ridge along the coast. (CCSE, 2009)
	Hydrology	
	Stream Gage	No; Hydrology can be compared to Arroyo Grande Creek which has a USGS and San Luis Obispo County stream gage station. (Balance Hydrologics, 2008)
	Hydrology Models	Yes; A HEC-HMS watershed model for Pismo Creek was developed for the *Hydrology and Geology Assessment* and looked at peak flows (Balance Hydrologics, 2008).
	Peak Flow	No source identified for measured peak flows. Peak flows (100-year recurrence) can be expected to be on the order of 150 to 200 cfs per square mile and intermediate (1.6-year recurrence) flows can be expected to be on the order of 15 to 90 cfs per square mile, based on the modeling conducted, and

		calibrated to measured flows in nearby similar watersheds (Balance Hydrologics, 2008).
	Base Flow	September low flows are estimated to have ranged from 0 to 7.5 cfs since 1968. This is equal to approximately 0 to 0.20 cfs per square mile (Balance Hydrologics, 2008).
	Flood Reports	No locally specific source identified. The SLO County Flood Insurance Study was revised in 2012. Pismo Creek Mainstem channelized from Hwy 101 downstream to Pismo Beach; A levee, faced with soil sediment, was constructed along the south over bank of Pismo Creek between river miles 0.8 and 0.5 to protect the wastewater treatment plant. According to a 1997 Federal Emergency Management Agency (FEMA) report, the levee does not confine 100-year flood flows, and could be been washed out during an event of that magnitude; While not designed as a flood control mechanism, the private dam on West Corral de Piedra may function to hold storm water from upper West Corral de Piedra. (CCSE, 2009) Areas of Flood Risk include East Corral de Piedra upstream of intersection of Twin Creeks Way and Mira Cielo Drive and intersection of Twin Creeks Way with Hwy 227; Lower Pismo Creek from Hwy 101 downstream to Pacific Ocean and south to State Parks Campground/Carpenter Creek. (CCSE, 2009)
	Biological Setting	
	Vegetation Cover	Primarily non-native grassland with some coast live oak, mixed chaparral with chamise and buckbrush, mixed evergreen forest, black sage scrub. Some dune scrub, and urban land.(SLO County, vegetation shapefile, 1990) Forest and woodland habitats are most common in the coastal hills and in northern inland hills within this watershed. Riparian and wetland vegetation are present near Pismo Lake and along portions of Pismo Creek. Wetland vegetation is also present in patches along the margins of Pismo Estuary.(Althouse & Meade, Inc, 2013) Limited spatial data. No alliance level vegetation mapping was available for the entire County.
	Invasive Species	Arundo, Cape Ivy (CCSE, 2009) Limited data.
	Special Status Wildlife and Plants	*Key:* FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered.

Pismo Creek Watershed

Limited by the type of data collected in the CA Natural Diversity Database.

Common Name	Status	ARROYO GRANDE NE	LOPEZ MTN	PISMO BEACH
Animals				
American badger	SSC	x		x
California red-legged frog	**FT**		**x**	**x**
coast horned lizard	SSC			x
Coast Range newt	SSC		x	
foothill yellow-legged frog	SSC		x	
globose dune beetle	SA			x
monarch butterfly	SA			x
prairie falcon	SA (Nesting)	x	x	x
San Luis Obispo pyrg	SA		x	
sandy beach tiger beetle	SA			x
steelhead - south/central California coast DPS	**FT**	**x**	**x**	**x**
tidewater goby	**FE**			**x**
vernal pool fairy shrimp	**FT**			**x**
western mastiff bat	SSC			
western pond turtle	SSC	x	x	x
western snowy plover	**FT**			**x**
Plants/Lichen				
beach spectaclepod	**ST**	**x**		**x**
black-flowered figwort	CRPR 1B.2	x		x
Blochman's dudleya	CRPR 1B.1			x
Blochman's leafy daisy	CRPR 1B.2			x
Brewer's spineflower	CRPR 1B.3	x	x	x
Cambria morning-glory	CRPR 4.2	x	x	x
chaparral ragwort	CRPR 2B.2		x	

Pismo Creek Watershed

Common Name	Status	ARROYO GRANDE NE	LOPEZ MTN	PISMO BEACH
Chorro Creek bog thistle	**FE; SE**		**x**	**x**
Congdon's tarplant	CRPR 1B.1	x		x
Cuesta Ridge thistle	CRPR 1B.2		x	
dune larkspur	CRPR 1B.2		x	
dwarf soaproot	CRPR 1B.2		x	
Eastwood's larkspur	CRPR 1B.2	x	x	
Hoover's bent grass	CRPR 1B.2	x	x	x
Hoover's button-celery	CRPR 1B.1			x
Indian Knob mountain-balm	**FE; SE**			**x**
Jones' layia	CRPR 1B.2		x	x
La Panza mariposa-lily	CRPR 1B.3			x
marsh sandwort	**FE; SE**	**x**		**x**
mesa horkelia	CRPR 1B.1	x		x
Morro manzanita	**FT**			**x**
most beautiful jewel-flower	CRPR 1B.2		x	
mouse-gray dudleya	CRPR 1B.3	x	x	x
Palmer's monardella	CRPR 1B.2		x	
Pecho manzanita	CRPR 1B.2		x	x
Pismo clarkia	**FE; SR**	**x**		**x**
saline clover	CRPR 1B.2			
San Luis mariposa-lily	CRPR 1B.2	x	x	x
San Luis Obispo County lupine	CRPR 1B.2	x		x
San Luis Obispo owl's-clover	CRPR 1B.2	x	x	x
San Luis Obispo sedge	CRPR 1B.2		x	
Santa Lucia manzanita	CRPR 1B.2		x	
Santa Margarita manzanita	CRPR 1B.2	x	x	x

Pismo Creek Watershed

Common Name	Status	ARROYO GRANDE NE	LOPEZ MTN	PISMO BEACH
straight-awned spineflower	CRPR 1B.3	x		
surf thistle	**ST**	**x**		**x**

Steelhead Streams	Pismo Creek; East and West Corral de Piedra Creeks (NMFS,2005)
Stream Habitat Inventory	Yes; Completed 2005 for Pismo Creek and West Corral de Piedra as landowner access allowed by California Department of Fish and Game staff. None completed for other tributaries. (CCSE, 2009)
Fish Passage Barriers	Fish Ladder at Railroad Crossing of Pismo Creek: stream mile 5.3, Temporary Barrier, PAD # 700044.00000; Arizona Crossing of Pismo Creek: stream mile 4.6, Temporary Barrier, PAD # 736885.00000; County bridge Crossing of West Corral de Piedra Creek at Righetti Road: stream mile 8.2, Temporary Barrier, PAD # 700080.00000; (San Luis Obispo County Stream Crossing Inventory and Fish Passage Evaluation, 2005) Other potential barriers identified by landowners: Bridge Creek Road Crossing of West Corral de Piedra Creek, stream mile 9.1; Righetti Dam spillway on West Corral de Piedra Creek, stream mile 9.8; West Corral de Piedra Creek at Hwy 227 and Old Edna where boulders may have been placed, stream mile 5.7, PAD # 731304.00000; A concrete stream crossing with two culverts observed on East Corral de Piedra Creek may also be a fish passage barrier. (CCSE, 2009) Bedrock Falls at West Corral de Piedra Creek, Total Barrier, PAD # 700079.00000 (CDFW Passage Assessment Database, 2013)
Designated Critical Habitat	Yes; Tidewater goby and Steelhead trout (USFWS Critical Habitat Portal, viewed 2013)
Habitat Conservation Plans	None.(USFWS Critical Habitat Portal, viewed 2013)
Other Environmental Resources	Coastal Zone
Land Use	
Jurisdictions & Local Communities	County of San Luis Obispo, City of Pismo Beach, Town of Shell Beach
% Urbanized	13% (5.44% urban, 6.58% residential, less than 1% of commercial, industrial and public facilities) (SLO County LUC)

Pismo Creek Watershed

	% Agricultural	74% (SLO County LUC)
	% Other	13% (12.78% rural lands, less than 1% of recreation open space) (SLO County LUC)
	Planning Areas	San Luis Obispo, San Luis Bay Coastal, San Luis Bay Inland, Los Padres
	Potential growth areas	Los Ranchos/Edna Village area (Specific Plan, 2001); Price Canyon and Los Robles del Mar areas (recent development proposals)
	Facilities Present	Private Dam on West Corral de Piedra Creek; Cold Canyon Landfill; Plains Exploration Oil Field; Pismo Beach Wastewater Treatment Plant with discharge to Ocean; Country Club Wastewater Treatment Plant.
	Commercial Uses	Plains Exploration and Production Company; Recreation and tourism at Pismo Beach; Wineries in Edna Valley; 3 Bar S Ranch/Spreafico Mine for decorative rock, Patchett Pit Mine for sand and gravel (SLO County extractive resources)
	Demographics	
	Population	8,945 (U.S. Census Block, 2010) 7,655 in City of Pismo Beach (US Census, 2010)
	Race and Ethnicity	86% Caucasian, 9% Latinos, 2% Asian, and 2% two or more races. The remaining races each represent less than 1%, including African American, American Indian, Pacific Islander, and other (U.S. Census Block, 2010).
	Income	MHI $79,171 in watershed.(US Census Tract, 2010) MHI $65,682 in City (US Census, 2010) Census tract crosses multiple watersheds.
	Disadvantaged Communities	No; 2% of individuals are below poverty level in watershed.(US Census Tract, 2010) 4.9% of individuals are below poverty level in City (US Census, 2010) Census tract crosses multiple watersheds.
	Water Supply	
	Water Management Entities	City of Pismo Beach. No source identified. "The Los Ranchos/Edna Village area obtains water through a central system owned by the California Cities Water Company. Developed parcels within the remainder of the village area obtain water from individual wells or two small mutual water companies." (Draft Los Ranchos Village Plan, 2013) Limited data identified.
	Groundwater	Yes; alluvial and San Luis Obispo Valley (SLO County, 2012)
	Surface Water	No public reservoirs. There is a private dam on West Corral de Piedra Creek (CCSE, 2009).
	Imported Water	Yes; entitled to 896 AFY from Lake Lopez, 1,100 AFY of State Water and 700 AFY of groundwater from the Arroyo Grande aquifer. (City

		of Pismo Beach, 2013)
	Recycled/ Desalinated Water	None in the City of Pismo Beach. No source identified.
	Infiltration Zone	The rolling hills of Canada Verde's tributaries are largely incised into the Paso Robles formation, with limited volumes of recent alluvium. Soils are mapped in this area largely as belonging to hydrologic soil group A and B, indicating that these areas may be especially suitable for ground-water recharge during storms, and also slow release of ground-water to streams during base flow periods. (Balance Hydrologics, 2008) Limited data.
	Water Budget	None to date. One is planned by Central Coast Salmon Enhancement for completion in 2015.
	Water Uses	
	Beneficial Uses	*Pismo Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN). *Pismo Creek Estuary* – Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD), Estuarine Habitat (EST), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Shellfish Harvesting (SHELL) (RWCQB, 2011)
	Other Unique Characteristics	
	Historic Resources	The Price House is listed on the National Register of Historic Places (NRHP, viewed 2013). The Tognazzini General Store is identified a historic site by the SLO County (Draft Los Ranchos Village Plan, 2013).
	Archeological Resources	There was a Chumash town called Pismu at the time of European settlement (SB Museum of Natural History, viewed 2013). Limited data.

	Other	No source identified.
	Climate Change Considerations	
		State climate change maps show sea level affecting portions of the City of Pismo Beach and town of Oceano with inundation areas along lower Pismo Creek and Carpenter Creek particularly between Highway 101 and the ocean (USGS, Cal-Adapt, viewed 2013). See IRWMP, 2014 Section H. Climate Change Limited data and not watershed specific.

Watershed Codes

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.260005	2	Point Buchon	6	Pismo	310.26	undefined	West Corral de Piedra Creek
3310.260001	2	Point Buchon	6	Pismo	310.26	undefined	East Corral de Piedra Creek
3310.260002	2	Point Buchon	6	Pismo	310.26	undefined	Canada Verde
3310.260004	2	Point Buchon	6	Pismo	310.26	undefined	Lower Pismo Creek
3310.260003	2	Point Buchon	6	Pismo	310.26	undefined	Upper Pismo Creek
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- In 1772, Mission San Luis Obispo was established bringing ranching to the area.
- The watershed covers portions of three Mexican land grants; the San Miguelito, the Pismo and the Corral de Piedra (Effie McDermott Archives).
- In 1865, Edgar Willis Steele and his brothers purchased 45,000 acres in the Edna Valley and introduced the modern dairy industry to San Luis Obispo County. In 1866, Edgar Steele bought portions of Corral de Piedra, El Pismo, Bolsa de Chamisal and Arroyo Grande ranchos. They operated five dairy farms, each with 150 head of dairy cattle.
- Railroad

Pismo Creek Watershed

- Prior to 1911, Pismo Creek's lower drainage included Pismo Lake, and what today is called Meadow Creek. Lower Pismo Creek joined with Arroyo Grande Creek in its lowest reaches and flowed into the ocean.
- In 1953, the Pismo Beach Wastewater Treatment Plant began operation.
- In 1965, Cold Canyon Landfill began accepting non-hazardous waste.
- In the late 1970's, Plains Exploration & Production started production of the oil field in Price Canyon.

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources	Environmental Flows
Pismo Creek Mainstem	Perennial	Yes on 303d list for Chloride, E. coli, Fecal Coliform, Low Dissolved Oxygen, and Sodium. TMDL estimated date of completion 2021. (Central Coast RWQCB, 2011)	Agriculture, grazing-related, natural sources, resource extraction, petroleum activities, transient encampments (Central Coast RWQCB, 2011)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
West Corral de Piedra	Ephemeral?	No.	Undetermined.	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
East Corral de Piedra	Ephemeral?	No.	Undetermined.	No source identified.
Canada Verde	Perennial?	No.	Undetermined.	No source identified.

Pismo Creek Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance,
San Luis Obispo Valley – Pismo Creek Valley Subbasin	200 AFY, although this is before any consideration for environmental habitat demand (Fugro, 2009). (SLO County, Master Water Report, 2012)	Physical limitations and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts. (SLO County, Master Water Report, 2012)	Yes; see description below. (SLO County, Master Water Report, 2012)	No for basin. No objective for subbasin. (RWQCB, 2011)
San Luis Obispo Valley – Edna Valley Subbasin	4,000 AFY (DWR, 1997) (SLO County, Master Water Report, 2012)	Physical limitations and environmental demand (SLO County, Master Water Report, 2012)	No. (SLO County, Master Water Report, 2012)	No for basin. No objective for subbasin. (RWQCB, 2011)

Groundwater Quality Description: The general mineral character of groundwater in the Edna Valley subbasin is magnesium-calcium bicarbonate with a TDS range of 630-780 mg/l (average 690 mg/l), based on public water company testing during 2008. This is consistent with surface water samples collected in 2007 from tributaries to Pismo Creek in the Edna Valley, where the water was magnesium-calcium bicarbonate with 500-800 mg/ TDS (Balance Hydrologics, 2008; GSWC, 2009).

Results of six groundwater samples collected from Pismo Creek Valley subbasin wells in 1999 indicate magnesium bicarbonate and magnesium sulfate-bicarbonate are the dominant water types, with a median TDS of 620 mg/l. One well exceeded the State drinking water standards for TDS and sulfate, and most of the wells also had iron and/or manganese concentrations above the drinking water standards (Fugro, 2009). (SLO County Public Works Master Water Report, 2012)

Primary Issues

Issue	Potential Causes	Referenced from
Surface Water Quality - Temperature	Lack of riparian canopy	CCSE, 2009
Surface Water Quality - Nutrients and Dissolved Oxygen	Agriculture, increased runoff due to development	CCAMP
Ocean Water Quality – Fecal	Birds, domestic animal waste,	Kitts, 2009

Pismo Creek Watershed

Issue	Potential Causes	Referenced from
coliform	faulty septic systems, homeless encampments	
Surface flow Quantity	Natural, groundwater diversions, impoundment	CCSE, 2009
Groundwater Quantity	Physical limitations, production	SLO County Master Water Report, 2012
Fish Passage Barriers	Multiple sites inaccessible to fish traffic	CCSE, 2009
Erosion and Sedimentation	Drought/storm years weaken banks, agricultural practices	CCSE, 2009
Flood Management	Development in floodplains	CCSE, 2009

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

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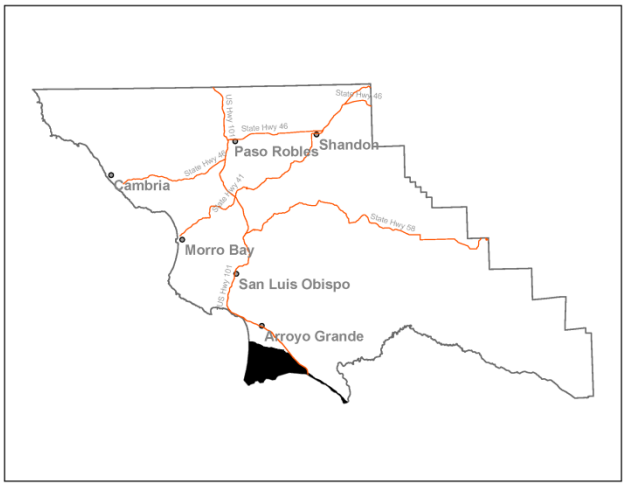
Santa Maria River Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin(s)	Jurisdictions
Estero Bay & Santa Maria HU 10 & 12	South Coast WPA 7	33,205 acres	Pacific Ocean	Santa Maria Valley	County of San Luis Obispo, Town of Nipomo

Photo by: G. Bates



Description:

The Santa Maria River Watershed is located in southern San Luis Obispo County and northern Santa Barbara County. The watershed includes the major tributaries of the Cuyama and Sisquoc Rivers as well as a number of smaller tributaries. The Santa Maria River (downstream of the confluence with Cuyama and Sisquoc Rivers) rises to a maximum elevation of approximately 390 feet and flows to the Pacific Ocean. Drainage in the watershed is linked to the soils and geology with a dune lake complex, Black Lake Canyon slough, Oso Flaco Creek and portions of the Santa Maria River within the County of San Luis Obispo.

The watershed is dominated by residential and agricultural land uses including ranches, row crops, greenhouses and orchards. Other land uses include recreation and oil refinery.

Watershed Plans:

Santa Maria River Estuary Enhancement and Management Plan (Dunes Center, 2004)

Santa Maria River Watershed

Characteristics:

	Physical Setting	
	Rainfall	15 – 17 inches (NRCS Precipitation 1981-2010)
	Air Temperature	Summer Range (August 1981-2010): 54°- 73°F Winter Range (December 1981-2010): 39°- 63°F At Santa Maria Public Airport, CA. (NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Santa Maria River, Black Lake Canyon and Oso Flaco Creek watersheds consist of flat highly infiltrative Quaternary headwaters – category #3. (Bell, personal communication, 2013) The watershed lies at the boundary of two geomorphic regions – the Coast Ranges and the Transverse Ranges – both highly influenced by right-lateral movement along the San Andreas Fault Zone. The lithology of the watershed is characterized as … young, weakly consolidated marine and some non-marine sedimentary rocks composing the valley bottoms. The … and Santa Maria valleys are the two principal depositional basins in the watershed and support the watershed's two main groundwater basins. It has been estimated that each basin has a maximum thickness of sediments reaching 2.0 and 2.9 km, respectively that has been filling continuously over the past 4 million years. (Stillwater Sciences, 2012) The Paso Robles Formation is water bearing (Morro Group, 1996). The watershed in underlain by an ancient sheet of windblown sand (Morro Group, 1996). The Nipomo Mesa west of U.S. 101 is basically its own watershed, having no watercourses entering from outside. With the exception of certain portions of Black Lake Canyon, the Mesa's undulating terrain creates a series of contiguous, undrained basins having ponding potentials (Lawrance, Fisk & McFarland, Inc 1987).
	Hydrology	
	Stream Gage	No; USGS 11141600 Los Berros C Nr Nipomo Ca (1968-1978, discontinued); USGS 11141000 Santa Maria R A Guadalupe (1941 - 1987, discontinued) Limited water quality data with instantaneous discharge was collected at USGS 350146120352501,Little Oso Flaco Lake Near Guadalupe CA (years unknown, active); USGS 350121120351301 Unnamed Trib To Oso Flaco Creek Near Guadalupe Ca (2008-08-06,active); USGS 350059120351501 Oso Flaco CA Oso Flaco Lake Rd Near Guadalupe Ca (2008-08-06, active); USGS 345945120341301

		Oso Flaco C A Hwy 1 Near Guadalupe Ca (2008-08-06,active); USGS 345955120330901, Oso Flaco C 1.0 Mi Us Of Hwy 1 Near Guadalupe Ca (dates unknown, active); USGS 350001120261101,Nipomo CA Hwy 101 Bridge Ca (1975-02-12,inactive) Limited data for major creeks.
	Hydrologic Models	Yes; for Santa Maria River Estuary (Dunes Center, 2004). Limited data for major creeks.
	Peak Flow	No source identified for Black Lake Canyon. Overall average annual discharge [for Oso Flaco Creek] measured over rain years 2009, 2010, 2011 is 2,062.25 million gallons for Site OFC 20. The highest monthly average flow was 17.46 cfs. (A&M, 2012) Limited data for major creeks.
	Base Flow	No source identified for Black Lake Canyon. Overall average annual discharge [for Oso Flaco Creek] measured over rain years 2009, 2010, 2011 is 2,062.25 million gallons for Site OFC 20. The lowest monthly average flow was 5.12 cfs for Site OFC20. (A&M, 2012). The Guadalupe gage (USGS 11141000) [on the Santa Maria River] record from 1941–1987 reported periods every year of continuous zero discharge, some up to three years in duration (Stillwater Sciences, 2012). Limited data for major creeks.
	Flood Reports	Yes; Nipomo Drainage and Flood Control Study (SLO County, 2004); No sources identified for Black Lake Canyon, Oso Flaco or Santa Maria River areas. The [Nipomo] Mesa's undulating topography creates numerous depressions, including low spots having no outflow drainage paths, which lead to a high incidence of localized ponding (SLO County FCWCD, 2009). Large portions of the Oso Flaco Creek subwatershed are within the FEMA 100 year flood zone; connecting to the Santa Maria River in large events. Flood risk is localized in the Black Lake Canyon area. (FEMA, Flood Maps) Limited data for major creeks.
	Biological Setting	
	Vegetation Cover	Primarily agricultural land and coastal beaches and dunes with

		some central coastal scrub (sagebrush and heather goldenbush), coast live oak forest, coastal and valley freshwater marsh and urban land. (SLO County, vegetation shapefile, 1990) Grassland, coastal dune scrub/chaparral, riparian/freshwater marsh, cypress/eucalyptus (Morro Group, 1996). Dune wetlands and riparian vegetation are present in backdunes and along dune lakes in this watershed. (Althouse and Meade, 2013) Limited spatial data. No alliance level vegetation mapping was available for the entire County.
	Invasive Species	Eucalyptus, Giant reed, Cape ivy, Perennial pepperweed, Hoary cress, bull thistle, non-native grasslands. (Dunes Center, 2004) Limited data.
	Special Status Wildlife and Plants	Special status plant taxa observed include California spineflower, sand almond, Gambel's watercress, marsh sandwort (Morro Group, 1996). Special status wildlife for which appropriate habitat is present include silver legless lizard, southwestern pond turtle, California red-legged frog, Cooper's hawk, sharp-shinned hawk, golden eagle, prairie falcons, Peregrine falcon and monarch butterfly. (Morro Group, 1996) *Key:* FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the portion overlapping the watershed boundary was considered. Limited by the type of data collected in the CA Natural Diversity Database.

Common Name	**Status**	**GUADALUPE**	**NIPOMO**	**OCEANO**	**POINT SAL**	**SANTA MARIA**
	Animals					
American badger	SSC			x		
arroyo chub	SSC				x	
burrowing owl	SSC (Burrow sites, some wintering sites)				x	
California black rail	**ST**			**x**		
California least tern	**FE; SE**			**x**	**x**	

Santa Maria River Watershed

Common Name	Status	GUADALUPE	NIPOMO	OCEANO	POINT SAL	SANTA MARIA
California red-legged frog	**FT**	**x**	**x**	**x**		**x**
California tiger salamander	**FT; ST**					
coast horned lizard	SSC	x		x	x	x
globose dune beetle	SA			x		
mimic tryonia (=California brackish water snail)	SA			x		
monarch butterfly	SA			x		x
Morro Bay blue butterfly	SA			x		
Oso Flaco flightless moth	SA			x		
Oso Flaco patch butterfly	SA			x		
Oso Flaco robber fly	SA			x		
prairie falcon	SA (Nesting)		x	x		
sandy beach tiger beetle	SA			x		
sharp-shinned hawk	SA (Nesting)		x	x		
silvery legless lizard	SSC	x		x	x	
steelhead - south/ central California coast DPS	**FT**		**x**	**x**		
tidewater goby	**FE**			**x**	**x**	
two-striped garter snake	SSC				x	
western pond turtle	SSC			x		
western snowy plover	**FT**			**x**	**x**	
western spadefoot	SSC		x			x
white sand bear scarab beetle	SA			x	x	
Plants						
beach spectacle-pod	**ST**			**x**	**x**	
Blochman's leafy daisy	CRPR 1B.2			x	x	
California saw-grass	CRPR 2B.2			x		
coast woolly-heads	CRPR 1B.2			x		
coastal goosefoot	CRPR 1B.2	x		x	x	

Santa Maria River Watershed

Common Name	Status	GUADALUPE	NIPOMO	OCEANO	POINT SAL	SANTA MARIA
crisp monardella	CRPR 1B.2	x		x	x	
Davidson's saltscale	CRPR 1B.2	x				
dune larkspur	CRPR 1B.2			x		x
Gambel's water cress	**FE; ST**			**x**		
Hoover's bent grass	CRPR 1B.2			x		
Kellogg's horkelia	CRPR 1B.1			x		
La Graciosa thistle	**FE; ST; CRPR 1B.1**	**x**		**x**	**x**	
marsh sandwort	**FE; SE**			**x**		
Miles' milk-vetch	CRPR 1B.2		x			
Nipomo Mesa lupine	**FE; SE**			x		
Pismo clarkia	**FE; SR**			**x**		
San Bernardino aster	CRPR 1B.2			x		
San Luis Obispo monardella	CRPR 1B.2			x	x	
sand mesa manzanita	CRPR 1B.2	x	x	x		x
Santa Margarita manzanita	CRPR 1B.2		x	x		
San Luis Obispo County lupine	CRPR 1B.2		x			
short-lobed broomrape	CRPR 4.2			x	x	
surf thistle	**ST; CPRR 1B.2**			**x**	**x**	

Steelhead Streams	Santa Maria River (NMFS, 2005)
Stream Habitat Inventory	No source identified.
Fish Passage Barriers	Road Crossing Unnamed tributary to Santa Maria River, Unknown Status, PAD # 731125; Black Lake Canyon and Hwy 1 Culvert, Unknown Status, PAD # 731671. (CDFW Passage Assessment Database, 2013)
Designated Critical Habitat	Yes; La Graciosa thistle (A&M, 2012); Western snowy plover (USFWS Critical Habitat Portal, viewed 2013); Steelhead trout (NMFS, 2005)
Habitat Conservation Plans	None. (USFWS Critical Habitat Portal, viewed 2013)
Other	Guadalupe Dunes Complex, Coastal Zone, Oso Flaco Lake Natural

Santa Maria River Watershed

	Environmental Resources	Reserve, Nipomo Dunes, Dune Lakes, Black Lake Canyon and wetlands (freshwater marsh, peat bog, riparian)
	Land Use	
	Jurisdictions & Local Communities	Nipomo Community Services District
	% Urbanized 33,205.3	27% (22.6% residential, 4.39% commercial, industrial and public facility) (SLO County LUC)
	% Agricultural	37.2% (SLO County LUC)
	% Other	35.9% (2.31% open space, 27.48% recreation, 6.07% rural lands) (SLO County LUC)
	Planning Areas	South County Inland, South County Coastal
	Potential growth areas	Nipomo Mesa
	Facilities Present	Private wells and septic systems; small water companies include Rural Water Company, Mesa Dunes Mobile home Estates, La Mesa Water Company, Las Flores Water Company, Troesh Recycling and others. Limited data.
	Commercial Uses	Proposed oil processing facilities, agriculture including greenhouses, row crops, cattle grazing, recreation Limited data.
	Demographics	
	Population	13,720 in watershed (U.S. Census Block, 2010)
	Race and Ethnicity	63.9% Caucasian (8,775), 2.5% Asian (349), 30.1% Latino (4,128), 3.5% Other (U.S. Census Block, 2010)
	Income	MHI $56,538 (U.S. Census Tract, 2010) Census tract crosses multiple watersheds.
	Disadvantaged Communities	No; 7% of individuals are below poverty in the watershed.(U.S. Census Tract, 2010) Census tract crosses multiple watersheds.
	Water Supply	
	Water Management Entities	Nipomo Community Services District; Rural Water Company; Golden State Water Company; Woodlands Water Company; about 29 small purveyors are on the Nipomo Mesa (LAFCO, 2010) Limited data.
	Groundwater	Yes; alluvial and Santa Maria River Valley (SLO County, 2012)
	Surface Water	No public reservoirs.

	Imported Water	Planned; supplemental water from Santa Maria which is blended state water and groundwater (Douglas Wood & Ass., 2009).
	Recycled/ Desalinated Water	Yes; Woodlands Wastewater Treatment Plant for irrigation of golf course; Desalinated water is not currently used but is being explored. (LAFCO, 2010)
	Infiltration Zones	Seepage of river flows through the river bed along the Santa Maria River and along the lower reaches of the Cuyama and Sisquoc Rivers is the primary source of recharge to the Santa Maria Groundwater Basin. Percolation of river flows through unconsolidated, permeable alluvial deposits account for approximately 75-85% of the average annual recharge to the groundwater basin. A significant portion of the groundwater recharge attributable to river bed seepage is due to the operation of the Twitchell Dam. (SLO County & SB County, 1998) Limited data.
	Water Budget	None to date. Santa Maria Basin is adjudicated. The Nipomo Valley Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by DWR but outside of the adjudicated basin area (SLO County, Master Water Plan, 2012). Limited data.
	Water Uses	
	Beneficial Uses	*Dunes Lakes* – Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early Development (SPWN). *Oso Flaco Creek* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early Development (SPWN). *Oso Flaco Lake*– Municipal and Domestic Supply (MUN), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Spawning, Reproduction, and/or Early

		Development (SPWN). *Santa Maria River* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), *Santa Maria River Estuary* – Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Preservation of Biological Habitats of Special Significance (BIOL), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN).(RWQCB, 2011)
	Other Unique Characteristics	
	Historic Resources	No source identified.
	Archeological Resources	There are a number of archaeological sites in the [Nipomo] area which are large but of a low density (Morro Group, 1996). Limited data.
	Other	No source identified.
	Climate Change Considerations	
		State climate change maps show sea level inundation at the Oso Flaco Creek and Santa Maria River Estuaries (USGS,Cal-Adapt, viewed 2013). See IRWMP, 2014 Section H. Climate Change Limited data and not watershed specific.

Santa Maria River Watershed

Watershed Codes

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning Area	CDF Watershed Name
3310.320000	3	Arroyo Grande	2	Nipomo Mesa	310.32	undefined	undefined
3312.100300	1	Guadalupe	0	undefined	312.10	Santa Maria Valley	Santa Maria Valley
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- Nipomo Creek, during the Pliocene Epoch, flowed to the north joining Los Berros Creek and Arroyo Grande Creek. During the Quaternary period of the Holocene Epoch, rapid melting of glaciers caused changes in sea levels and rapid migration of shoreline dunes inland blocking the flow of Nipomo Creek. The blockage created shallow lakes which broke thought the dunes of the Nipomo Mesa creating Black Lake Canyon. Further encroachment of sand eventually blocked this direct seaward exist of Nipomo. The subsequent build up of water in Nipomo valley found its weakest point to exit through a southern route becoming a tributary of the Santa Maria watershed (Ardoin/Bishop, 2004)
- 9,000 years. Most of the recorded cultural sites occur on the bluff of the mesa overlooking several creeks and in the foothills near larger tributaries. Sites on the Nipomo Mesa did not support as dense a population as neighboring coastal areas, and represent temporary occupations or small villages (Wheeler, 2005).
- In 1772, a mission was established in San Luis Obispo.
- A portion of the watershed is part of the Rancho Nipomo Mexican Land Grant awarded to Captain William Dana in 1835 bringing cattle and sheep to the area.
- In 1878, the Pacific Coast Railway was granted land.
- The 1890's brought growth to the area with expanding agriculture and an influx of immigrant families to work the land.
- In 1936, Dorthea Lange chronicled the dire poverty of the migrant "pea pickers" in Nipomo, taking the iconic photo of the depression, Migrant Mother.
- The three largest fires of the last half-century were the 1966 Wellman fire, the 2007 Zaca fire, and the 2009 LaBrea fire.
- Between 1980 – 2000, Nipomo experienced dramatic population growth at a total growth rate of 140% (Biorn, 2005).

Santa Maria River Watershed

Watershed Health by Major Tributary

Tributary Name	**Ephemeral / Perennial**	**303d Listed/ TMDLs**	**Pollution Sources** NP (non-point) MP (Major Point)	**Environmental Flows**
Oso Flaco Creek	Perennial	Yes on 303d list for Ammonia, Chloride, Fecal Coliform, Nitrate, Sediment Toxicity, Sodium, Unknown Toxicity. TMDL estimated date of completion 2013. (SWRCB, 2010)	Agriculture, Natural, Groundwater Loading, Unknown (SWRCB, 2010)	No source identified.
Little Oso Flaco Creek	Perennial	Yes on 303d list for Fecal Coliform, Nitrate, Sediment Toxicity, Unknown Toxicity. TMDL estimated date of completion 2013. (SWRCB, 2010)	Agriculture, Groundwater Loading, Unknown (SWRCB, 2010)	No source identified.
Black Lake Canyon	Isolated	Not assessed. (SWRCB, 2010)	Undetermined.	No source identified.
Santa Maria River	Ephemeral	Yes on 303d list for Chloride, Chlorpyrifos, DDT, Dieldrin, Endrin, E. coli, Fecal Coliform, Nitrate, Sediment Toxicity, Sodium, Toxaphene, Turbidity, Unknown Toxicity. TMDL estimated date of completion 2013. (SWRCB, 2010)	Agriculture, Natural, Grazing Related, Natural, Onsite Waste-water Systems (Septic), Urban Runoff Unknown(SWRCB, 2010)	No source identified.

Santa Maria River Watershed

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
Santa Maria Valley – Nipomo Valley Subbasin	No existing yield. (SLO County, Master Water Report, 2012)	Physical limitations and water quality. (SLO County, Master Water Report, 2012)	No. (SLO County, Master Water Report, 2012)	No objective for the basin. (RWQCB, Table 3-8, 2011)
Santa Maria Valley- Nipomo Mesa Management Area	4,800-6,000 AFY (SLO County, Master Water Report, 2012)	Physical limitations, water quality, and water rights. (SLO County, Master Water Report, 2012)	No. (SLO County, Master Water Report, 2012)	Yes. (RWQCB, 2011)

Groundwater Quality Description:

Nipomo Valley subbasin: Water quality is variable across the sub-basin, and the available data set does not distinguish between older alluvial wells and fractured rock wells, although most of the water represented is from the fractured rock reservoirs. Groundwater samples collected from 22 wells between 1962 and 2000 displayed the following characteristics: TDS concentrations ranged from 750 mg/L to 1,300 mg/L; sulfate concentrations between 200 and 340 mg/L; chloride concentrations between 64 and 130 mg/L; and nitrate concentrations from non-detect to 3.4 mg/L. Groundwater is classified as suitable to marginal under water quality guideline for irrigated agriculture (DWR 2002).

Nipomo Mesa Management Area*:* Water quality varies in general mineral character across the Nipomo Mesa. The median TDS in 35 wells sampled between 1990 and 2000 was approximately 500 mg/L. Nitrate has been detected in excess of the drinking water standard in relatively few wells (DWR 2002; NMMA Technical Group, 2009). According to the database maintained by the California Department of Public Health (CDPH), production wells used for public drinking and industrial use in the NMMA met drinking water quality standards in 2008. One of the ConocoPhillips production wells had a reported value of 1,000 mg/L TDS, the highest reported to the CDPH within the NMMA; the well is used for industrial processing (NMMA Technical Group, 2009). (SLO County, Master Water Report, 2012)

Santa Maria River Watershed

Primary Issues

Issue	Potential Causes	Referenced from
Effects of Cattle grazing Unknown	Limited Study	Dunes Center, 2004
Impaired surface water quality	Grazing, crop land	Dunes Center, 2004; Althouse and Meade, 2012; RWQCB, 2012 and 2013.
Potential for incidental take of endangered or threatened species	None	Dunes Center, 2004
Lack of data on plant and wildlife species.	Limited study	Dunes Center, 2004
Vegetation in the channel concentrates and diverts flows, and causes erosion and flooding of low-lying areas.	Vegetation in the channel	Dunes Center, 2004
Land use practices on [Santa Maria River] study reach and dune parcels may be incompatible with plan goals.	Limited land available for enhancement	Dunes Center, 2004
Presence of levees that restrict or otherwise modify flows, flow channels and sediment transport corridors.	Levees along Santa Maria River	Dunes Center, 2004
Invasive riparian plant species that establish in the [Santa Maria River] study reach may impede flood flows, interfere with agricultural operations, cause ecological degradation, and spread into adjacent habitats	Invasive riparian plants	Dunes Center, 2004
Sediment accretion in the [Santa Maria River] study reach and erosion along the shoreline.	Twitchell dam changes to sediment transport	Dunes Center, 2004
Run-off from urban areas contributes nitrates and other pollutants into the [Santa Maria River] study reach.	Urban, rural runoff, legacy groundwater	Dunes Center, 2004
DDT and dieldrin	Undetermined, sediment	Davis, 2010 and RWQCB TMDL

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

Santa Maria River Watershed

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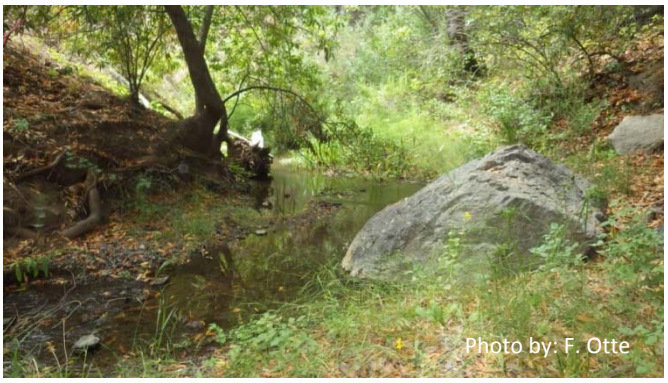
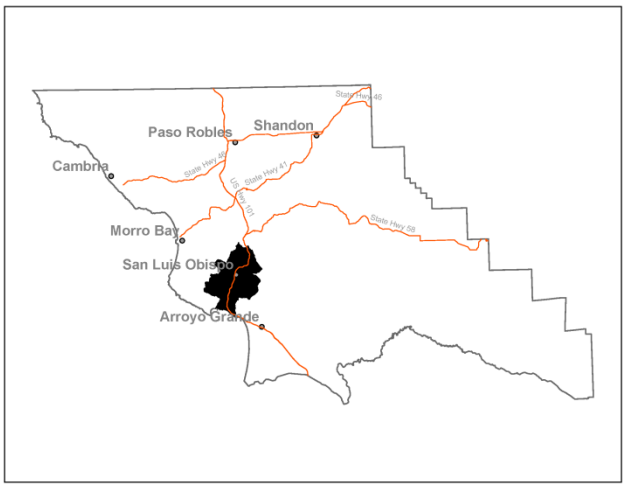
San Luis Obispo Creek Watershed

Hydrologic Unit Name	Water Planning Area	Acreage	Flows to	Groundwater Basin	Jurisdictions
Estero Bay HU 10	San Luis Obispo/ Avila WPA 6	53,271 acres	Pacific Ocean	San Luis Obispo Valley; Avila Valley subbasin	County of San Luis Obispo City of San Luis Obispo Town of Avila Beach Port San Luis Harbor District





Description:

The San Luis Obispo Creek Watershed is a coastal basin located in southern San Luis Obispo County. The drainage rises to a maximum elevation of approximately 2,500 feet above sea level in the Santa Lucia Range. San Luis Obispo Creek flows to the Pacific Ocean and has six major tributary basins: Stenner Creek, Prefumo Creek, Laguna Lake, East Branch San Luis Obispo Creek, Davenport Creek, and See Canyon.

The watershed is dominated by agricultural land uses including ranches and open space. The urban core of the City of San Luis Obispo is at the confluences of several tributaries with the mainstem starting in the upper watershed and bisecting the City. The unincorporated community of Avila Beach is adjacent to the mouth of San Luis Obispo Creek at the Pacific Ocean. Other land uses include the California Polytechnical State University, rural residential, a regional airport and two wastewater treatment plants.

Watershed Plans:

San Luis Obispo Creek Watershed Enhancement Plan (The Land Conservancy of San Luis Obispo County, 2002)

Prefumo Creek Watershed Management Plan. (City of San Luis Obispo, expected 2014)

San Luis Obispo Creek Watershed

Characteristics:

	Physical Setting	
	Rainfall	17 – 33 inches (NRCS Precipitation 1981-2010) 24 – 29 inches, Mean Annual (SLO County Water.org)
	Air Temperature	Summer Range (August 1981-2010): 55° - 77° F Winter Range (December 1981-2010): 43° - 61° F At Cal Poly San Luis Obispo, CA. (NOAA National Climatic Data Center, viewed 2013)
	Geology Description	Stenner Creek consists of steep pre-Quaternary non-infiltrative headwaters and a flat Franciscan low infiltrative valley – category #2. Reservoir Canyon Creek consists of steep moderately infiltrative early to mid-Tertiary headwaters and a flat pre-Quaternary moderately infiltrative valley – category #11. Prefumo Creek consists of steep moderately infiltrative early to mid-Tertiary headwaters; flat youngest Tertiary highly infiltrative valley – category #15. (Bell, personal communication, 2013) East Branch SLO Creek and Davenport Creek consist of flat Franciscan headwaters and flat Quaternary valley. Rock types in the SLO area are mainly comprised of volcanic, metavolcanics and mélanges of serpentinite and greywacke sandstone. These rocks are highly fractured and are part of the Mesozoic aged Franciscan Formation. Intrusive and extrusive volcanic deposits of Tertiary age and marine sedimentary deposits of the Miocene aged Monterey Formation are also found in the area. The most distinctive geomorphological feature of the San Luis Obispo area is the series of Tertiary aged volcanic plugs (remnants of volcanoes) which extend from the City of San Luis Obispo to Morro Bay. Hollister Peak, Bishop Peak, Cerro San Luis Obispo, Islay Hill and Morro Rock are all comprised of these volcanic plugs. (City of SLO, 2010)
	Hydrology	
	Stream Gage	Yes; USGS 11142000 Steiner Creek near San Luis Obispo, CA (no data online for this site, inactive) (USGS NWIS, viewed 2013). Andrews Street at San Luis Obispo Creek (2001-present, active); Stenner Creek at Nipomo Street (2001 -present, active); Elks lodge bridge and San Luis Obispo Creek (2001 -present, active); Laguna Lake outflow at Madonna (2001 -present, active); East Fork at Jespersen Bridge (2001 -present, active) (SLOCountyWater.org, viewed 2013). City of SLO Los Osos Valley Road at San Luis Obispo

		Creek (2004/5, status unknown) (Otte, personal communication, 2013). Historically, at least two stream gauges existed in the San Luis Obispo Creek Watershed that would have been capable of recording flood peaks. One was located on lower San Luis Obispo Creek near Avila, and the other was located on Upper San Luis Obispo Creek, in San Luis Obispo. Unfortunately, both of these gauges were put out of service in 1992. Since that time, the City of San Luis Obispo has re-installed a gauge on Upper San Luis Obispo Creek. However, there is no gauge record for the 1995 water year (Questa Engineering, County of San Luis Obispo, 2003 p C-19).
	Hydrologic Models	Yes; Questa Engineering for San Luis Obispo Creek Watershed Waterway Management Plan, 2003.
	Peak Flow	19,800 cfs San Luis Obispo Creek above See Canyon (FEMA Flood Insurance Study,1978); 22,000 cfs San Luis Obispo Creek at Squire Canyon (Questa/Zone 9 Model); "…, the Corps/Nolte/FEMA study used an actual recorded rainfall event (in this case, the January 19, 1973 event) to define a storm that theoretically represented the maximum precipitation possible for a given part of the watershed."(Questa Engineering, County of San Luis Obispo, 2003, pC-28).
	Base Flow	No source identified for measured summer base flows. City of San Luis Obispo Wastewater Treatment Plant is required to discharge a minimum of 2.5 cfs into San Luis Obispo Creek. "A conservative estimate was made by assuming that base flow in the creek during a large storm would be similar to the base flow in the creek that was observed over the week following the storm of March 2, 1983.The average base flow for this time period, omitting days when rainfall occurred, was approximately 14 cms (500 cfs). Divided over the upstream area of 207 km2 (80 mi2) this gives an average base flow rate of 0.067 cms/km2 (6.3 cfs/mi2), which was then applied to each [of 61 individual] sub-basin [formed for the watershed model]. This base flow rate is significantly higher than the long term average winter-season flow rate in San Luis Obispo creek, and is intended to represent the base flow in the creek during a series of wet storms. It is much greater than any likely winter time releases from the City of San Luis Obispo Water Reclamation Facility, which discharges into San Luis Obispo Creek downstream from the Prado Road Bridge."(Questa Engineering, 2003, pC-8)
	Flood Report	Yes; San Luis Obispo Creek Waterway Management Plan (Questa Engineering, 2003). The City manages several flood by-pass channels along SLO Creek

		and Laguna Lake for flood control. (Otte, personal communication, 2013) Areas of flood risk include Highway 101 near Los Osos Valley Road (LOVR) and extends extends up Prefumo Creek to Calle Joaquin; San Luis Obispo Creek near Elks Lane; between Marsh Street and Madonna Road; San Luis Obispo Creek above Cuesta Park; across Santa Rosa Street and through a residential neighborhood toward Chorro Street and Old Garden Creek; East Fork of SLO Creek at Buckley Road.(Questa Engineering, 2003, p78-84)
	Biological Setting	
	Vegetation Cover	Primarily non-native grassland with some chaparral (chamise, leather oak, mixed serpentine), coastal scrub, coastal live oak forest, agricultural land and urban land. (SLO County, vegetation shapefile, 1990) SLO Creek is dominated by a willow (*Salix spp*.) riparian canopy with a mixture of oaks, sycamore, and cottonwood trees making up the rest of the native canopy. The understory consists of blackberry vines, coyotebrush, sage species, coffee berry, toyon, elderberry and a large number of ornamental non-native species (Questa Engineering, 2003). Mixed chaparral found near Cuesta grade contains several species of manzanita, many of which are endemic and rare. (Althouse and Meade, Inc, 2013) Limited current spatial data. No alliance level vegetation mapping was available for the entire County.
	Invasive Species	*Arundo donax* (Giant Reed), *Delairea oderata* (Cape Ivy), poison hemlock (*Conium maculatum*), tree of heaven (*Ailanthus altissima*), several species of eucalyptus, and castor bean (*Ricinus communis*). Other various weeds including anise, cocklebur, yellow star thistle, milk thistle and Italian thistle (Land Conservancy, 2002). There are non-native palm trees and myoporum and other ornamental escapee's which have colonized the creek channel. Himalayan blackberry, kikuyu grass, vinca, pampas grass, French and Spanish broom, English ivy, and bullfrogs. (Otte, personal communication, 2013) Limited spatial data.
	Special Status Wildlife and Plants	*Key:* FE - Federal endangered, FT - Federal threatened, SE - State endangered, ST - State threatened, SSC - State Species of Special Concern; FP- Fully Protected, SA – Special Animal, CRPR – CA rare plant rank (CNDDB, viewed August, 2013) Locations listed refer to USGS 7.5' quadrangle names. Only the

portion overlapping the watershed boundary was considered.

Limited by the type of data collected in the CA Natural Diversity Database.

Common Name	Status	ARROYO GRANDE NE	LOPEZ MTN	PISMO BEACH	PORT SAN LUIS	SAN LUIS OBISPO
	Animals					
American badger	SSC	x		x		x
Atascadero June beetle	SA					x
black legless lizard	SSC				x	
California red-legged frog	**FT**	**x**	**x**	**x**		**x**
coast horned lizard	SSC	x		x		
Coast Range newt	SSC		x			x
ferruginous hawk	SA (Wintering)					x
foothill yellow-legged frog	SSC		x			x
globose dune beetle	SA			x		
loggerhead shrike	SSC (Nesting)	x				x
monarch butterfly	SA			x		x
pallid bat	SSC					x
prairie falcon	SA (Nesting)	x	x	x		x
San Luis Obispo pyrg	SA		x			x
sandy beach tiger beetle	SA			x		
silvery legless lizard	SSC		x			
steelhead - south/central California coast DPS	**FT**	**x**	**x**	**x**		**x**
tidewater goby	**FE**			**x**		
vernal pool fairy shrimp	**FT**			**x**		**x**
western mastiff bat	SSC					x
western pond turtle	SSC	x	x	x		x
western snowy plover	**FT**			**x**		

San Luis Obispo Creek Watershed

Common Name	Status	ARROYO GRANDE NE	LOPEZ MTN	PISMO BEACH	PORT SAN LUIS	SAN LUIS OBISPO
western yellow-billed cuckoo	Federal Candidate; SE					x
white-tailed kite	FP		x			x
	Plants/Lichen					
adobe sanicle	**SR**					**x**
Arroyo de la Cruz manzanita	CRPR 1B.2					x
beach spectaclepod	**ST**	**x**		**x**		
Betty's dudleya	CRPR 1B.2					x
black-flowered figwort	CRPR 1B.2	x		x		
Blochman's dudleya	CRPR 1B.1			x		x
Blochman's leafy daisy	CRPR 1B.2			x		
Brewer's spineflower	CRPR 1B.3	x	x	x		x
Cambria morning-glory	CRPR 4.2	x	x	x		x
chaparral ragwort	CRPR 2B.2		x			x
Chorro Creek bog thistle	**FE; SE**		**x**	**x**		**x**
Congdon's tarplant	CRPR 1B.1	x		x		x
Cuesta Pass checker-bloom	**SR**					**x**
Cuesta Ridge thistle	CRPR 1B.2		x			x
dune larkspur	CRPR 1B.2		x			
dwarf soaproot	CRPR 1B.2		x			x
Eastwood's larkspur	CRPR 1B.2	x	x		x	x
Hoover's bent grass	CRPR 1B.2	x	x	x	x	
Hoover's button-celery	CRPR 1B.1			x		x
Indian Knob mountain-balm	**FE; SE**			**x**		
Jones' layia	CRPR 1B.2		x	x		x
La Panza mariposa-lily	CRPR 1B.3			x		x

San Luis Obispo Creek Watershed

Common Name	Status	ARROYO GRANDE NE	LOPEZ MTN	PISMO BEACH	PORT SAN LUIS	SAN LUIS OBISPO
marsh sandwort	**FE; SE**	**x**		**x**		
mesa horkelia	CRPR 1B.1	x		x		x
Miles' milk-vetch	CRPR 1B.2					x
Morro manzanita	**FT**			**x**	**x**	**x**
most beautiful jewel-flower	CRPR 1B.2		x		x	x
mouse-gray dudleya	CRPR 1B.3	x	x	x		x
Palmer's monardella	CRPR 1B.2		x			x
Pecho manzanita	CRPR 1B.2		x	x	x	
Pismo clarkia	**FE; SR**	**x**		**x**		
saline clover	CRPR 1B.2					x
San Benito fritillary	CRPR 1B.2					x
San Luis mariposa-lily	CRPR 1B.2	x	x	x		x
San Luis Obispo owl's-clover	CRPR 1B.2		x			
San Luis Obispo County lupine	CRPR 1B.2	x		x		
San Luis Obispo owl's-clover	CRPR 1B.2	x	x	x		x
San Luis Obispo sedge	CRPR 1B.2		x			x
Santa Lucia manzanita	CRPR 1B.2	x	x			x
Santa Margarita manzanita	CRPR 1B.2	x	x	x	x	x
straight-awned spineflower	CRPR 1B.3	x				
surf thistle	**ST**	**x**		**x**		

Steelhead Streams	San Luis Obispo Creek, San Miguelito (See Canyon) Creek, Froom Creek, Prefumo Creek, Stenner Creek, Brizzolari Creek, Unnamed tributary (NMFS, 2005). Dry Creek, Acacia Creek, Reservoir Canyon (Otte, personal communication, 2013).
Stream Habitat Inventory	Yes; Completed in 1995 by Paul Cleveland on mainstem San Luis Obispo Creek. (Land Conservancy, 2002) Limited data that does not include major tributaries. Last data collected in mid 1990's.

San Luis Obispo Creek Watershed

	Fish Passage Barriers	Cuesta Park Fishway at Concrete Ford on SLO creek, Temporary Barrier, PAD # 700062.00000; Golf cart route on Prefumo Creek, Temporary Barrier, PAD # 700045.00000; Los Osos Valley Road Culvert and ladder on Prefumo Creek, Temporary Barrier, PAD # 700046.00000; Stenner Creek Road Bridge Apron on Stenner Creek, Temporary Barrier, PAD # 700069.00000; Railroad Crossing Culvert at Stenner Creek, Total Barrier, PAD # 700071.00000; Highland Drive Dam at Stenner Creek, Partial Barrier, PAD # 700072.00000; Cheda Reservoir Diversion Dam for Reservoir, Temporary Barrier, PAD # 700073.00000; Stenner Glen Dam at Stenner Creek, Temporary Barrier, PAD # 700074.00000; Cormorant Way Marre Dam and Denil Ladders at SLO Creek, Temporary Barrier, PAD # 700056.00000;Stagecoach rd. bridge apron on SLO creek, Temporary Barrier, PAD # 700057.00000; Reservoir Canyon Dam, Total Barrier, PAD # 700060.00000; End of Oceanair Blvd. Drop structure at Prefumo Creek, Temporary Barrier, PAD # 700049.00000; Rip Rap dam at Laguna Lake Golf Course on Prefumo Creek, Temporary Barrier, PAD # 700051.00000; Concrete Dam at Stenner Creek, Temporary Barrier, PAD # 707022.00000; Hwy 227 Culvert at Davenport Creek, Unknown Status, PAD # 731372.00000; Highland Drive Fish Ladder at Brizziolari Creek, Partial Barrier, PAD # 707004.00000; Blacksmith Road Culvert at Brizziolari Creek, Temporary Barrier, PAD # 707005.00000; Culvert at Poly Canyon rd. on Brizziolari Creek, Temporary Barrier, PAD # 707006.00000; Concrete Spillway at Laguna lake on Prefumo Creek, Unknown Status, PAD # 707014.00000; Rock Weir at Laguna Lake Golf Course, Unknown Status, PAD # 707015.00000; Hwy 101 Culvert at Castro Canyon, Unknown Status, PAD # 731538.00000; Hwy 101 Culvert at SLO creek, Unknown status PAD #731909.00000; Hwy 101 culvert at Stenner Creek, Unknown Status PAD #731962.00000; Hwy 101 culvert at Froom Creek, Unknown Status PAD # 732077.00000; Marsh St. Culvert on SLO creek, Partial Barrier, PAD # 712028.00000; Murray St. on Stenner Creek, Temporary Barrier, PAD # 712030.00000; Stenner Creek Rd. Bridge at Stenner Creek, Partial Barrier, PAD # 712031.00000; Unnamed Cal poly road at Brizzolari Creek, Total Barrier, PAD # 712037.00000; Black Walnut Road at See Canyon Creek, Total Barrier, PAD # 712038.00000; Santa Fe. Rd at Dry Creek, Total Barrier, PAD # 712047.00000; Diversion Weir at Stenner Creek, Unknown Status, PAD # 707023.00000; Black Walnut Road at See Canyon Creek, Partial Barrier, PAD # 712039; Fish Passage Facility at Loomis St. on SLO creek, Temporary Barrier, PAD # 700062. (CDFW Passage Assessment Database, 2013)
	Designated Critical Habitat	Yes; Steelhead Trout and California red-legged frog (USFWS Critical Habitat Portal, viewed 2013)
	Habitat Conservation Plans	None. (USFWS Critical Habitat Portal, viewed 2013)

San Luis Obispo Creek Watershed

	Other Environmental Resources	Critical Coastal Area, San Luis Obispo Greenbelt Program, Nine Sisters of San Luis Obispo, Cuesta Ridge Botanical Area, Serpentine outcrops and related endemic species
	Land Use	
	Jurisdictions & Local Communities	City of San Luis Obispo; unincorporated Avila Beach; Avila Beach Community Service District; Port San Luis Harbor District
	% Urbanized	25% (15.27% urban, 2.22% commercial, industrial and public facility, 7.69% residential) (SLO County LUC)
	% Agricultural	49% (SLO County LUC)
	% Other	26% (4.07% open space, 20.3% rural lands, 1.67% recreation)(SLO County LUC)
	Planning Areas	San Luis Obispo, San Luis Bay Inland, San Luis Bay Coastal, Salinas River, Los Padres
	Potential growth areas	Los Ranchos/Edna Village area; Margarita Area; Orcutt Area; Airport Area (City of San Luis Obispo Specific Plans,) and the Dalidio Ranch (County of San Luis Obispo Land Use Ordinance, 2013)
	Facilities Present	San Luis Obispo Wastewater Treatment Plant with discharge to San Luis Obispo Creek; Country Club Wastewater Treatment Plant; Avila Beach Wastewater Treatment Plant with discharge to the ocean; Stenner Creek Water Treatment Plant; San Miguelito Mutual Water Company percolation beds; other private water systems; San Luis Obispo County Regional Airport; San Luis Obispo Tank Farm; former Avila Tank Farm; Harford Pier; Avila Pier.
	Commercial Uses	Agricultural production, recreation and tourism in City of San Luis Obispo and community of Avila Beach; golf courses; wineries in Edna Valley; regional airport; commercial and sport fishing at Harford Pier in Port San Luis, Froom Ranch Pit for Stone, Alberti Ranch Quarry for stone. (SLO County, extractive resources)
	Demographics	
	Population	56,220 in watershed (US Census Block, 2010) San Luis Obispo: 45,119 in City (US Census, 2010); Avila Beach: 1,627 in Avila Beach (US Census, 2010)
	Race and Ethnicity	Watershed: 42,827 or 76.2% white, 3198 or 5.7% Asian, 1.7% other, 1701 or 3% two or more, 7636 or 13.6% Latino. San Luis Obispo: Caucasian, representing 75.8%. Latinos represent 14.7% of the total population in Grover Beach. The remaining races each represent less than 5%, including African American, American Indian, Pacific Islander, and Asian(US Census, 2010). Avila Beach: Caucasian, representing 88.7%. Latinos represent 6.8% of the total population in Grover Beach. The remaining races each represent less than 2%, including African American, American Indian, Pacific Islander, and Asian(US Census, 2010).

San Luis Obispo Creek Watershed

	Income	MHI $55,352 in watershed (US Census Tract, 2010) MHI $42,528 in San Luis Obispo (US Census, 2010) Census tracts cross multiple watersheds.
	Disadvantaged Communities	Yes; 7% of individuals are below poverty level in watershed. 31.5% of individuals are below poverty level in San Luis Obispo. Census tracts cross multiple watersheds.
	Water Supply	
	Water Management Entities	City of San Luis Obispo, Avila Beach Community Services District, San Luis Obispo County Flood Control and Water Conservation District, Zone 3 (to CSA 12).
	Groundwater	Yes; alluvial and San Luis Obispo Valley (SLO County, 2012)
	Surface Water	No public reservoirs in the watershed. Identified as fully appropriated stream system for entire year according to the SWRCB's Water Code 1205-1207.
	Imported Water	Yes; State Water Project and County Service Area 12 (Avila CSD, viewed 2013); South San Luis Water Corporation to Avila Beach (Avila CSD, 2013); from Salinas Reservoir in Santa Margarita; from Whale Rock in Cayucos; from Nacimiento Reservoir near Paso Robles. (City of SLO, 2013)
	Recycled/ Desalinated Water	Yes; Recycled water is produced from San Luis Obispo Wastewater Treatment Plant. At build out, the system will provide its customers approximately 1,000 acre feet per year of recycled water (City of SLO, viewed 2013)
	Infiltration Zones	The alluvial deposits are underlain by hard Franciscan rocks, which are exposed in the lower creek banks and creek bed in the northern part of the City, and by reddish brown siltstones, claystones, and conglomerate of the Paso Robes Formation (older Pleistocene) throughout much of the central and southern part of the City. This weakly to moderately consolidated rock is also exposed in the channel bottom and lower bank slopes along much of the middle reaches of SLO Creek, and along the southern side of Los Osos Valley. Locally it may form a subsurface barrier or retardance layer to water infiltration and groundwater recharge (Questa Engineering, SLO Waterway Management Plan, 2003 p14). Limited data.
	Water Budget	None to date.
	Water Uses	
	Beneficial Uses	*SLO Creek above W. Marsh St.* – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh

Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN).

SLO Creek below W. Marsh St. – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN).

SLO Creek East Fork– Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN).

Stenner Creek – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN).

Prefumo Creek – Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Ground Water Recharge (GWR), Freshwater Replenishment (FRSH), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD) , Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN).

SLO Creek Estuary – Ground Water Recharge (GWR), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Cold Fresh Water Habitat (COLD), Estuarine Habitat (EST), Wildlife Habitat (WILD), Preservation of Biological Habitats of Special Significance (BIOL),

San Luis Obispo Creek Watershed

		Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Shellfish Harvesting (SHELL) (RWQCB, 2011)
	Other Unique Characteristics	
	Historical Resources	A number of buildings in the City of San Luis Obispo are on the National Register of Historic Places. (NRHP, viewed 2013)
	Archeological Resources	At least one Chumash towns named Tsipxatu was in the watershed at European settlement. (SB Natural History Museum, 2013) Limited data.
	Other	No source identified.
	Climate Change Considerations	
		State climate change maps show sea level affecting portions of the town of Avila Beach with inundation along the lower reach of San Luis Obispo Creek (USGS,Cal-Adapt, viewed 2013). See IRWMP, 2014 Section H. Climate Change Limited data and not watershed specific.

Watershed Codes

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
3310.240103	2	Point Buchon	4	San Luis Obispo Creek	310.24	Upper San Luis Obispo Creek	Stenner Lake
3310.240101	2	Point Buchon	4	San Luis Obispo Creek	310.24	Upper San Luis Obispo Creek	Reservoir Canyon
3310.240102	2	Point Buchon	4	San Luis Obispo Creek	310.24	Upper San Luis Obispo Creek	Laguna Lake
3310.240202	2	Point Buchon	4	San Luis Obispo Creek	310.24	Lower San Luis Obispo Creek	Perfumo Canyon
3310.240201	2	Point	4	San Luis	310.24	Lower San	See Canyon

San Luis Obispo Creek Watershed

Calwater / DWR Number	HA	Hydrologic Area Name	HSA	Hydrologic Sub-area Name	SWRCB Number	CDF Super Planning	CDF Watershed Name
		Buchon		Obispo Creek		Luis Obispo Creek	
Source: Excerpt from California Interagency Watershed Map of 1999, Calwater 2.2.1 (CA Resource Agency, 2004 Update)							

Major Changes in the Watershed

- In 1772, Mission San Luis Obispo was established bringing ranching to the area.
- By 1846 mission lands were transferring to private ownership establishing land grants or ranchos.
- In 1897, Laguna Lake was smaller in size, with open water and a large wetland surrounding it.
- In 1884, Southern Pacific Railroad completed its line from San Francisco to San Luis Obispo.
- In 1897, a large tidal marsh was present to the east of the lagoon [estuary], under present location of western Avila Beach. At that time the lagoon mouth was substantially larger and wider (about 1/3 larger than current size). (SLO WaterwayMP, 2003).
- Damaging floods have occurred in 1868-62, 1884, 1897, 1911, 1948, 1952, 1962, 1969, 1973, 1983, 1995, and 1998. (SLO County FCWCD, 2009)
- In 1911, Stage Coach Dam and Reservoir Canyon Dam were constructed for water supply.
- In 1926, a lighting strike caused fire at the Union Oil Tank Farm sending a stream of burning oil down East Branch Creek to San Luis Obispo Creek and to the ocean.
- In the 1950's through today numerous sections of creek were straightened removing natural meanders.
- In 1960's Prefumo Creek was rerouted into Laguna Lake which was expanded to outlet under Madonna Road.
- In 1969 the Luigi Marre Land and Cattle Company constructed a dam across the lower SLO Creek to halt saltwater intrusion.
- In early 1970's flood control levees were constructed along various sections of channel.
- In 1977, the San Luis Obispo Creek lagoon is constrained by Avila Bay Drive, similar to its present configuration.
- In 1994, the Avila Beach Golf Course displaced the historic meander loop and sand bar. It appears that the original migration of the bend to the north was natural but golf course construction made significant alterations.
- In 1994, a major fire burned portion of the Upper Stenner, Brizziolari and SLO Creeks west of Cuesta pass.
- The 1995 Flood was reportedly caused by the wettest three month period in 116 years of record.

San Luis Obispo Creek Watershed

- In 1996, the Natural Resources Program is formed at the City of San Luis Obispo. Habitat improvements, barrier removal, invasive species control, erosion control, open space protection and acquisition.

Watershed Health by Major Tributary

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources	Environmental Flows
San Luis Obispo Creek (below Osos Street)	Perennial	Yes on 303d list for Chloride, Chlorpyrifos, Nitrate, Nutrients, Pathogens, Sodium. Approved USEPA TMDLs for Pathogens in 2004, for Nutrients in 2007 and for Nitrates in 2007. TMDL estimated date of completion 2021. (SWRCB, 2010)	Agriculture, Grazing Related, Natural, Major Municipal Point Source, Transient Encampments, Urban Runoff, Upstream Impoundment (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
San Luis Obispo Creek (above Osos Street)		Yes on 303d list for Fecal Coliform. TMDL estimated date of completion 2021. (SWRCB, 2010)	Unknown (SWRCB, 2010); Pigeons, Transients, Cattle grazing, Natural sources, Urban Runoff (Otte, personal communication, 2013)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Stenner Creek	Partially Perennial	Yes on 303d list for Fecal Coliform. TMDL estimated date of completion 2021. (SWRCB, 2010)	Agriculture, Grazing Related, Natural, Urban Runoff (SWRCB, 2010)	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)
Davenport Creek	Ephemeral	No. (SWRCB, 2010)	Undetermined.	No source identified.
East Fork San Luis	Ephemeral	No. (SWRCB,	Undetermined.	Table 3 of

San Luis Obispo Creek Watershed

Tributary Name	Ephemeral / Perennial	303d Listed/ TMDLs	Pollution Sources	Environmental Flows
Obispo Creek		2010)		Instream Flow Assessment (Stillwater Sciences, 2013)
Prefumo Creek	Partially Perennial	Yes on 303d list for Fecal Coliform, Low Dissolved Oxygen, Nitrate, Turbidity. TMDL estimated date of completion 2021. (SWRCB, 2010)	Agriculture, Urban Runoff, Unknown (SWRCB, 2010); Grazing related, Transients (Freddy Otte, 2013, personal communication)	No source identified.
See Canyon/ San Miguelito Creek	Perennial	No. (SWRCB, 2010)	Undetermined.	Table 3 of Instream Flow Assessment (Stillwater Sciences, 2013)

Watershed Health by Major Groundwater Basin

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
San Luis Obispo Valley Basin	6,000 AFY (SLO County, Master Water Report, 2012)	See sub-basins. (SLO County, Master Water Report, 2012)	See sub-basins. (SLO County, Master Water Report, 2012)	No. (RWQCB, Table 3-8, 2011)
San Luis Obispo Valley – San Luis Valley Subbasin	2,000 AFY (DWR, 1997) (SLO County, Master Water Report, 2012)	Physical limitations, water quality issues, and environmental demand. (SLO County, Master Water Report, 2012)	Yes; see description below. (SLO County, Master Water Report, 2012)	No objective for sub-basin. (RWQCB, Table 3-8, 2011)
San Luis Obispo Valley – Edna Valley Subbasin	4,000 AFY (DWR, 1997) (SLO County, Master Water Report, 2012)	Physical limitations and environmental demand. (SLO County, Master Water Report, 2012)	No. (SLO County, Master Water Report, 2012)	No objective for sub-basin. (RWQCB, Table 3-8, 2011)

San Luis Obispo Creek Watershed

Groundwater Basin	Estimated Safe Yield	Water Availability Constraints	Drinking Water Standard Exceedance	Water Quality Objective Exceedance
San Luis Obispo Valley – Avila Valley Subbasin	No basin yield numbers have been published (SLO County, Master Water Report, 2012)	Physical limitations and environmental demand. (SLO County, Master Water Report, 2012)	No. (SLO County, Master Water Report, 2012)	No objective for sub-basin. (RWQCB, Table 3-8, 2011)

Groundwater Quality Description: Water quality problems vary by location within the [San Luis Valley sub-basin, with nitrates, salinity, hardness, and perchloroethylene (PCE) historically being the constituents of greatest concern. PCE contamination was a major issue for two wells used by the City of San Luis Obispo during the period from 1987-91. Two high capacity wells were also shut down in the 1990's due to elevated nitrate concentrations. Hardness and TDS/chloride are more of a concern in the airport area (Cleath, T. S., 1987, 1988; Boyle, 1991). (SLO County Public Works Master Water Report, 2012)

The general mineral character of groundwater in the Edna Valley sub-basin is magnesium-calcium bicarbonate with a TDS range of 630-780 mg/l (average 690 mg/l), based on public water company testing during 2008. This is consistent with surface water samples collected in 2007 from tributaries to Pismo Creek in the Edna Valley, where the water was magnesium-calcium bicarbonate with 500-800 mg/ TDS (Balance Hydrologics, 2008; GSWC, 2009). (SLO County Public Works Master Water Report, 2012)

The alluvium [in the Avila Valley sub-basin] extends out to the ocean but the fresh water portion of the alluvium is upstream of the Marre weir at San Luis Bay Estates. Prior to installation of this weir in the early 1970's, seawater intrusion had occurred as far up the valley as the confluence with See Canyon Creek. Since the installation of the weir and with the supplemental flow from the City of San Luis Obispo wastewater treatment plant, there has not been any seawater intrusion documented upstream of the weir. General mineral character in the alluvial groundwater upstream of the Marre weir is sodium-magnesium bicarbonate, with TDS concentrations averaging close to 700 mg/l in the late 1970's (J.M. Montgomery, 1982). (SLO County Public Works Master Water Report, 2012)

Primary Issues

Issue	Potential Causes	Referenced from
Riparian Vegetation / Buffer Quality (Lack of riparian canopy)	Removal of riparian vegetation by landowners and livestock,	Land Conservancy, 2002
Surface Water Nutrients and Dissolved Oxygen	Agriculture, municipal, lack of riparian canopy	Land Conservancy, 2002
Surface Water Temperature	Lack of riparian canopy	Land Conservancy, 2002
Surface Water Pathogens	Described in TMDL for Pathogens (RWQCB, 2004)	Land Conservancy, 2002

San Luis Obispo Creek Watershed

Issue	Potential Causes	Referenced from
Surface Water Treated Effluent	City of San Luis Obispo's Wastewater Facility discharged	Land Conservancy, 2002
Surface Water Priority Organics	Unknown	Land Conservancy, 2002
Surface Water Quantity	Natural, diversions (permitted and unpermitted), evaporation, and exotic plants	Land Conservancy, 2002
Instream Fish Habitat	Lack of riparian canopy and instream shelter, sedimentation of stream cobble	Land Conservancy, 2002
Fish Passage Barriers	Roads, culverts, other instream structures	Land Conservancy, 2002
Streambank Stability (Erosion)	Development encroachment, channel incision, vegetation removal, overgrazing, agriculture, roads and utility construction	Land Conservancy, 2002 and Questa Engineering, 2003
Upland Erosion and Sedimentation	Vegetation removal, intensified grazing, unpaved roads, and disturbance associated with construction	Land Conservancy, 2002
Exotic Plant Species	None identified.	Land Conservancy, 2002
Non-Native Fish – Carp and Chinook Salmon	None identified.	Land Conservancy, 2002
Debris Accumulation	garbage, residential, commercial and agricultural products	Land Conservancy, 2002
Flooding	Natural, increased impervious areas, encroachment on floodplain	Questa Engineering, 2003

The issues described above are in no way an exhaustive list but were identified by entities working in the watershed. Additional research would be needed to flush out all the issues facing the watershed. Issues were vetted by the community to various degrees based on the individual document. There was no countywide vetting process to identify the relative priority of each issue.

San Luis Obispo Creek Watershed

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4. Data Gap Assessment

In compiling Watershed Snapshots, it was observed that many data gaps exist in each SLO County watershed. Identifying data gaps is an important step toward completing our collective understanding of watershed functions and management opportunities. The data gap analysis also provided a preliminary list of research needs for Phase 2 - the completion of a County-wide Watershed Management Plan.

4.1 Data Gap Methodology

Data deficiencies were evaluated through a simple method of reviewing data in each cell of the watershed snapshots and categorizing each as follows; 1) if data was completely missing from the watershed; 2) if there was partial, outdated or extrapolated data; and 3) if the data set was complete. Data sets were color coded in each watershed to reflect the appropriate category. Where data was identified as a partial data set, reasons for such categorization were listed in the data cell. Complete data is represented by a green color, partial data by yellow, and missing data by red. Through this effort, a consolidated chart was created that lists by watershed if data was missing, partially available, or complete. Refer to section 4.3 below for results of this base analysis.

4.2 Data Gap Summary of Findings

Through the compilation and basic evaluation of data gaps by category, county-wide and sub-region findings and trends were identified. Key data gap findings are summarized below.

4.2.1 Watershed Management Plans

Watershed management plans provide a community-directed and vetted plan that addresses issues beyond any one agency and empowers individuals to understand their watershed more fully and find solutions. Seventeen (17) out of twenty-five (25) watersheds do not have a watershed management plan or other broad-scale planning document that describes existing conditions, critical issues, recommended projects and an implementation approach. There are also 2 watersheds with waterway management plans which tend to focus on flooding issues (San Luis Obispo Creek and Arroyo Grande Creek). In some watersheds there are numerous other studies and plans which describe specific components of the watershed. However, in these instances the full range of challenges, solutions, and synergies in a watershed are not addressed comprehensively, as they would be in a complete Watershed Management Plan, and may not have community input.

Figure 2. Map of Watersheds with Management Plans

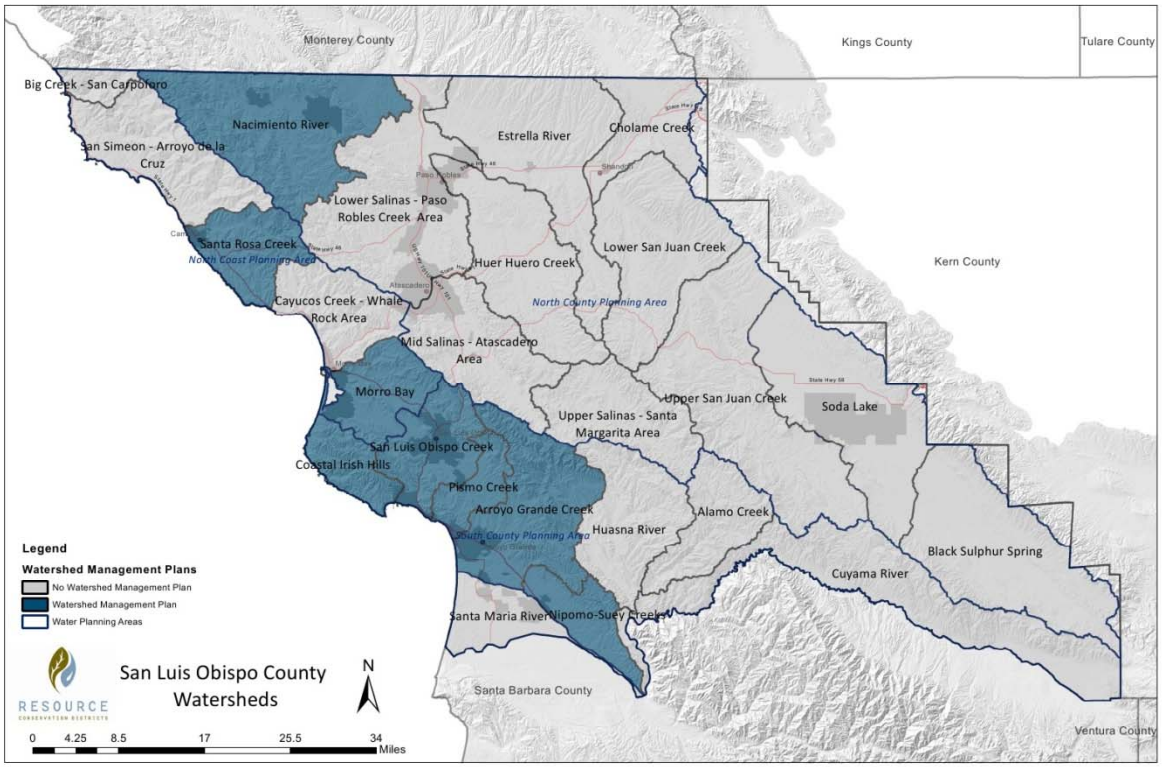


Table 1. Watersheds by Sub-region with a Watershed Management Plan

	Watershed Name
North Coast Sub-Region	
	1. Santa Rosa Creek Area Watershed
	2. Morro Bay Watershed
North County Sub-Region	
	3. Nacimiento River Watershed
South County Sub-Region	
	4. Arroyo Grande Creek Watershed
	5. Irish Hills Coastal Watersheds
	6. Nipomo Creek Watershed
	7. Pismo Creek Watershed

Table 2. Watersheds by Sub-region with a Waterway Management Plan

	Watershed Name
North Coast Sub-Region	
	None
North County Sub-Region	
	None
South County Sub-Region	
	San Luis Obispo Creek Watershed
	Arroyo Grande Creek Watershed

Table 3. Watersheds by Sub-region without a Watershed Management Plan

	Watershed Name
North Coast Sub-Region Watersheds	
	1. Big Creek – San Carpoforo Area Watershed
	2. Cayucos Creek – Whale Rock Area Watershed
	3. San Simeon - Arroyo de la Cruz Watershed
North County Sub-Region Watersheds	
	4. Upper Salinas - Santa Margarita Area Watershed
	5. Soda Lake Watershed

	6. Cholame Creek Watershed
	7. Black Sulphur Spring Watershed
	8. Estrella River Watershed
	9. Lower San Juan Creek Watershed
	10. Upper San Juan Creek Watershed
	11. Huer Huero Creek Watershed
	12. Mid Salinas- Atascadero Area Watershed
	13. Lower Salinas – Paso Robles Creek Area
South County Sub-Region Watersheds	
	14. Alamo Creek Watershed
	15. Cuyama River Watershed
	16. Huasna River Watershed
	17. Santa Maria River Valley Watershed

There was a range of content for each of the existing Watershed Management Plans that stemmed from community input, the funding source and the author. For example, many of the watershed management plans in the South County sub-region are Steelhead Trout focused with funding from the California Department of Fish and Wildlife. The North Coast (Santa Rita Creek) watershed plan, also funded by the California Department of Fish and Wildlife (CDFW), focused on Steelhead Trout as well. The North County (Nacimiento River) watershed plan was funded by the Regional Water Quality Control Board and had a greater focus toward water quality and eliminating stressors that degraded water quality.

To strengthen our understanding of local watersheds and provide a consistent base level of information, a minimum set of topics would ideally be vetted and included in all future watershed management plans and plan updates. Towards this end, a list of standards and guidance documents for developing Watershed Management Plans is found in Appendix E.

4.2.2 Overview of Available Data

The County, as a whole, is data rich in geology, land use, demographics, water sources and transportation systems. In some cases, although there was data, it was difficult to interpret for a non-specialist. For example, geologic information was sometimes described in great detail. Since we did not have a specialist for each data set compiled, we could not always translate the data into something understandable for the audience of this project.

In other cases, although data was present, it was not always available in the form needed for watershed management planning. For example, vegetation data collected for different purposes takes different forms. Descriptive and narrative data are useful to identify general types of vegetation present in one watershed versus another, and can provide acknowledgement of special stands that have limited distribution in the County, but cannot be easily used for modeling or quantitative comparison. Spatial data are more objective and quantitative, but one single shapefile is unlikely to be sufficient to answer all questions related to vegetation. In addition, not all areas of the County are covered at the same level of detail in existing datasets.

Overall, across the County, we are data poor in the health of water resources and watershed services. The functions of watersheds are not well captured, limiting the communities understanding of natural resources and their value. For example, if we identify floodplains as an area for limited development due to flood risk, we could also describe the water cleansing, flood attenuation, groundwater recharge, and wildlife habitat benefits provided to the community, increasing understanding and knowledge of the combined benefits of a watershed attribute.

At the sub-region scale, there are dramatic differences in the level of data tied to locally specific needs, challenges, endangered species, and population sizes. In general, the North County has the least data, the South County has the most data, and the North Coast falls in between. The North County's predominant land use is in large-scale agricultural production, resulting in a vastness of vegetated land and migratory habitat for threatened and endangered species such as Fairy Shrimp, California San Joaquin Kitfox, Giant Kangaroo Rat, Red Legged Frog, Burrowing Owl, and some Steelhead Trout. Cities within the North County continue to receive targeted population expansions. The largely undeveloped North Coast provides habitat to multiple threatened and endangered species, in particular Steelhead Trout, and attracts State and Federal funds for study and protection. The South County has most of the Cities (population centers) in the County, including the City of San Luis Obispo and California Polytechnic State University. The South County coastal watersheds also provide habitat to multiple threatened and endangered species, in particular the Steelhead Trout, and attract State and Federal funds for study and protection similar to the North Coast region.

4.3 Links to Primary Resource Issues

To help evaluate the relative priority of data gaps that could be addressed immediately in Phase 2, a data gap summary chart was used to illustrate links to watershed specific resource issues with the data

gaps identified in the individual watershed snapshots. This information will be vetted by the Watershed Working Group and others in the future to more definitively decide on priorities and may evolve as additional information and studies become available. Each of the links identified represent an area that may affect the communities ability to adequately address resource issues and thus should be evaluated further in future Phases.

It should be noted that there is wide variability in the extent of resource issues identified and published at a watershed scale. Ideally, the primary issues facing each watershed would be vetted through an individual watershed planning process. However, as this project simply collected and compiled existing published information, the listed issues are incomplete, especially in watersheds without a watershed management plan. While this list is not exhaustive, issues were noted for each watershed and linking known data gaps with these issues provides preliminary direction for future efforts towards maintaining resource availability and ecosystem health at a regional and watershed scale.

Watersheds were grouped by County Water Planning Area to determine regionally focused priorities. Each summary chart identifies priorities based on a tally of the number of gaps present linked to known watershed issues. (see Appendix F, G and H) Low priority data sets are defined as having less than 10 links to critical issues throughout the WPA. Medium priority data sets are defined as having 10-19 links to critical issues throughout the WPA. And high priority data sets are defined as having 20 or more links to critical issues throughout the WPA. Due to the limitations of the compiled data, these charts are not meant to remain as a guiding analysis for future efforts beyond Phase 1 of this project unless they are vetted and updated by the community throughout future project phases.

4.3.2 Prioritization Summary

In the North Coast sub-region, primary issues are linked to the following snapshot data gaps: stream gages, hydrology models, peak flow, base flow, vegetation cover identification, invasive species identification, special status species, stream habitat inventory, land use patterns correlated with vegetation loss, key groundwater percolation areas, water budgets, climate change impacts, tributary health, surface water quality, and groundwater basin health. Phase 2 priorities in this sub-region could focus on climate change impacts, tributary health, and water quality which are linked to the listed issues in a majority of the watersheds.

In the North County sub-region, primary issues are linked to the following snapshot data gaps: microclimate data, stream gages, hydrology models, peak flow, base flow, flood risk identification, invasive species identification, special status species, key groundwater percolation areas, water budgets, climate change impacts, tributary health, surface water quality, and groundwater basin health. Phase 2

priorities in this sub-region could focus on climate change impacts, tributary health, and groundwater basin health which are linked to the listed issues in a majority of the watersheds.

In the South County sub-region, primary issues are linked to the following snapshot data gaps: stream gages, peak flow, base flow, flood risk identification, vegetation cover identification, invasive species identification, special status species, stream habitat inventory, potential growth areas, water management entities, water sources, key groundwater percolation areas, water budgets, watershed history, climate change impacts, tributary health, surface water quality, and groundwater basin health. Phase 2 priorities in this sub-region could focus on base flows, tributary health and surface water quality which are linked to the listed issues in a majority of the watersheds.

Using an informal relative scale of priority, we rated data gaps on a county-wide scale based on the number of times they were linked to community vetted primary issues. High priority data gaps linked 40 or more times to issues, medium priority data gaps linked between 20 – 39 times, and low priority data gaps linked less than 20 times. Data gap links to primary issues common across the entire County include stream gages, peak flow, base flow, invasive species identification, special status species, key groundwater percolation areas, water budgets, climate change impacts, tributary health, surface water quality, and groundwater basin health. Table 4 illustrates these priorities for the entire County.

Table 4. Priority Level for Data Gaps in Phase 2

Data Gap	High	Medium	Low
Watershed Management Plan			X
Microclimate Data			X
Geology			X
Stream Gage		X	
Hydrology Models			X
Peak Flow		X	
Base Flow	X		
Flood Risk Identification and Assessment			X
Vegetation Cover Identification		X	
Invasive Species Identification and Assessment			X
Special Status Wildlife / Steelhead Trout Habitat Analysis		X	
Stream Habitat Inventory			X
Fish Passage Barriers			X
Land Use			X
Potential Growth Areas			X
Other needed land use information			X
Demographic Data			X
Water Management Entities			X
Water Sources			X
Key Groundwater Percolation Areas	X		
Water Budget		X	
Beneficial Water Uses			X
Watershed History/Major Changes			X
Climate Change Impact Analysis	X		
Tributary Health Analysis	X		
Surface Water Quality	X		
Groundwater Basin Health Analysis	X		

If a primary issue was not identified by the team or the community, it did not show up on the list. This creates limitations to this Phase 2 prioritization approach. In an effort to improve on this, the project team informally considered urgent county-wide needs that would have far reaching impacts on the

quality of life to County residents. With this in mind, water quantity arose as the top priority for Phase 2. The availability of water not only has direct impacts on the County's population but has further impacts associated with water quality, ecosystem vigor, climate resiliency, and economic vitality through implications to agricultural viability and county-wide tourist draw. Related data gaps might include key groundwater percolation areas, climate change impacts, tributary health analysis, hydrology modeling, stream gage information, and enhanced water budget analyses depending on unique localized characteristics. Focusing on a complete integrated analysis will heighten our ability to enact policies and management strategies that directly improve water availability. Depending on localized conditions, low and/or medium data gaps may relate to and strengthen top priority goals and thus, future efforts should take into account correlations between priority data gaps and moderate or low priority data gaps.

Resource specialists with whom we consulted have identified a secondary priority as protecting and enhancing the natural resources important to our community and our quality of life. Improving our natural resources not only enhances the environmental health of the watershed but has further implications in advanced watershed services such as water quality and water availability. Data gaps associated with this goal would include improving our understanding of the biological communities within a watershed and the impacts imposed due to changes in land use policy or resource management strategies. In addition, increased knowledge and understanding about resource impacts related to climate change scenarios would provide guidance for future management strategies and forecasted watershed health conditions aimed at increasing resiliency to water quality and levels throughout each region. This could lead to a more accurate depiction of the condition or health of our watersheds and allow for implementation of policies and projects directly related to maintaining valued watershed resources. Lower priority data gaps include vegetation and wildlife assessments which can provide key indicators of overall watershed health and are correlated with other water resources including water quality and water quantity.

4.4 Climate Change Assessment

Climate change impacts throughout the central coast region are forecasted to include extended drought cycles and periods of hyper-concentrated precipitation (California Natural Resource Agency, resources.ca.gov). These impacts will require a shift in resource management strategies and updated analysis of watershed conditions and functions accounting for the evolving climactic condition. As we are in the transition to this new climactic paradigm, much of the data compiled for this project was obtained throughout periods of traditional climate modeling. This changing climate regime creates the

need to establish new baseline data if future analyses are to provide successful resource management strategies. The RCDs have identified data gaps which take into account a changing climate model and recognize the need for updated information to assist policy planners and resource managers in responding to these new environmental conditions.

4.5 Findings

The following items highlight the trends and patterns- discussed above and as expressed in the watershed snapshots. While many conclusions and connections can be drawn from the data gap assessment, the RCDs have focused on the following as guidance for Phase 2 and future watershed efforts.

- Coastal watersheds with higher populations tended to have the most information while inland areas and those with lower populations had less information.
- County-wide vegetation data is limited due to a lack of detailed spatial data for many areas. Future support to alliance level mapping would improve planning data related to both rare and common wildlife habitat. Up to date, field-verified maps of riparian canopy and wetland habitats at an appropriate level of detail for all watersheds would assist in planning management actions that affect or are affected by condition of riparian and aquatic vegetation.
- Groundwater infiltration area data is limited and groundwater basins can span multiple watersheds requiring a broad perspective to influence groundwater recharge.
- Consultants should be actively engaged in data collection efforts as they can have more information than the County or other municipalities in specific subject areas.
- Survey information garnered throughout this project indicate that a future county-wide watershed plan be designed by sub-region to better address regional watershed issues.
- Priority data gaps for inclusion in Phase 2 include stream gages, peak flow, base flow, invasive species identification, special status species, key groundwater percolation areas, water budgets, climate change impacts, tributary health, surface water quality, and groundwater basin health.

4.6 Instream Flow Assessment: Filling a Data Gap

Stillwater Sciences was hired as part of this project to complete a preliminary insteam flow study to provide an estimate of the magnitude and timing of instream flows that would support Steelhead Trout

in San Luis Obispo County creeks. The following provides summarized excerpts from the full report which is included as Appendix C.

San Luis Obispo County has developed a Master Water Report (MWR) of the current and future water resource management activities being undertaken by various entities within the County (SLO County Water Resources 2012). In addition to total water demand (which includes urban, rural, and agricultural needs), the MWR includes an estimate of *Environmental Water Demand* (EWD), which is defined (MWR Section 4.6.5.1) as, "the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes." The MWR selected the federally threatened South-Central California Coast Steelhead (*Oncorhynchus mykiss)* as the target species for analysis, based on their adequacy as an indicator species (i.e., a species whose habitat requirements are sensitive enough to allow for successful identification of environmental problems, yet broad enough to adequately represent a wide array of aquatic species). However, the MWR did not provide EWD estimates for specific seasons or sub-watersheds, and recommended additional analysis. The objectives of this study are to further develop EWD estimates based on the recommendations of the MWR, including producing:

1. A county-wide assessment of instream flow requirements for Steelhead based on existing instream flow assessments;
2. An assessment of data needs to support EWD estimates;
3. Initial EWD estimates for the County;
4. A prioritization of streams for which detailed instream flow assessments would be most useful; and,
5. Recommendations for technically appropriate approaches to produce detailed and site-specific instream flow assessments.

This initial assessment is not intended to provide sufficient precision or detail from which to establish regulatory or mandatory water permit limits. In addition, these estimates of EWD are minimum values to maintain aquatic systems and should not be interpreted as "enough" water to support long-term, sustainable Steelhead populations or the complex ecosystem in which they live.

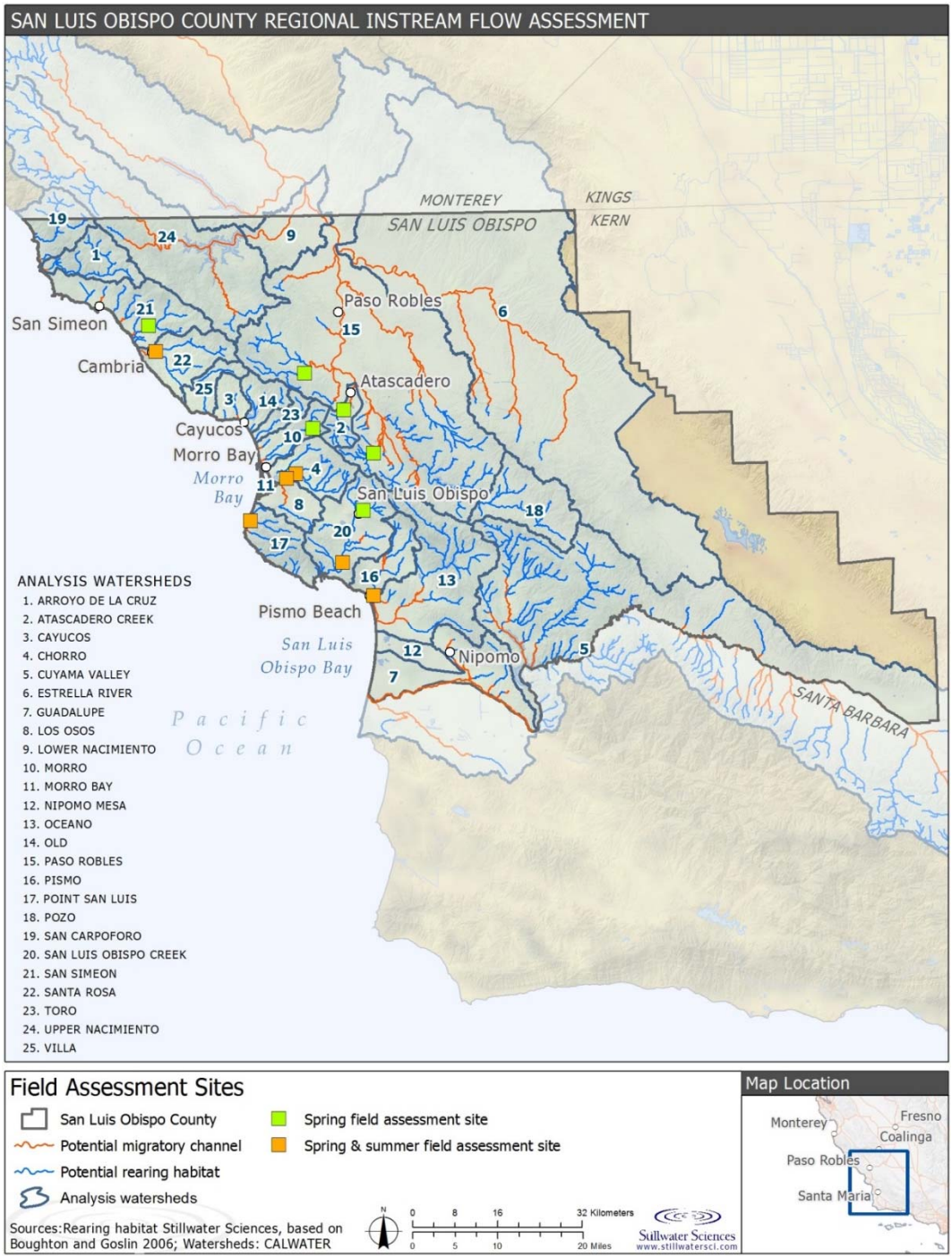
4.6.1 Approach

For this analysis, EWD was defined in relation to Steelhead life history requirements during the two most flow-sensitive periods for minimum flows, namely the spring period and the summer period. Portions of many County rivers are naturally dry each summer. We recognize that there is no value in predicting summer flow requirements for Steelhead in the portion of a creek that is naturally dry during part of the year. Therefore results from a National Oceanic and Atmospheric Administration (NOAA) analysis (Boughton and Goslin 2006) were used to limit analysis of EWD to portions of each watershed determined to have a high potential for Steelhead rearing to occur based on intrinsic watershed characteristics, including perennial flows.

To support our analysis, we divided all streams in the County into Analysis Watersheds based Hydrologic Areas, Hydrologic Sub-Areas, and Planning Watersheds. For streams in the interior of the County where Steelhead streams have a low density, Analysis Watersheds were larger, and based on Hydrologic Areas or Hydrologic Sub-Areas. On the coast of the County where Steelhead streams have a higher density, Analysis Watersheds were smaller, and designated based on Planning Watersheds.

Available hydrologic and physical terrain data and available instream flow assessments were reviewed and analyzed to explore appropriate watershed stratification and to assess the ability to extrapolate existing instream flow analyses throughout all watersheds of the County. All available hydrologic and physical terrain data were evaluated to assess patterns of instream flows and stream morphological characteristics, such as channel gradient, channel width, and geologic terrain. Because few existing instream flow analyses are available, a field-based instream flow assessment was conducted in numerous County streams. A predictive model was developed based on results of the field assessment to estimate EWD for the remaining watersheds in the County. A framework for improving these estimates is described, and high-priority data needs and watersheds to focus on are identified.

Figure 2. Map of Instream Flow Field Assessment Sites



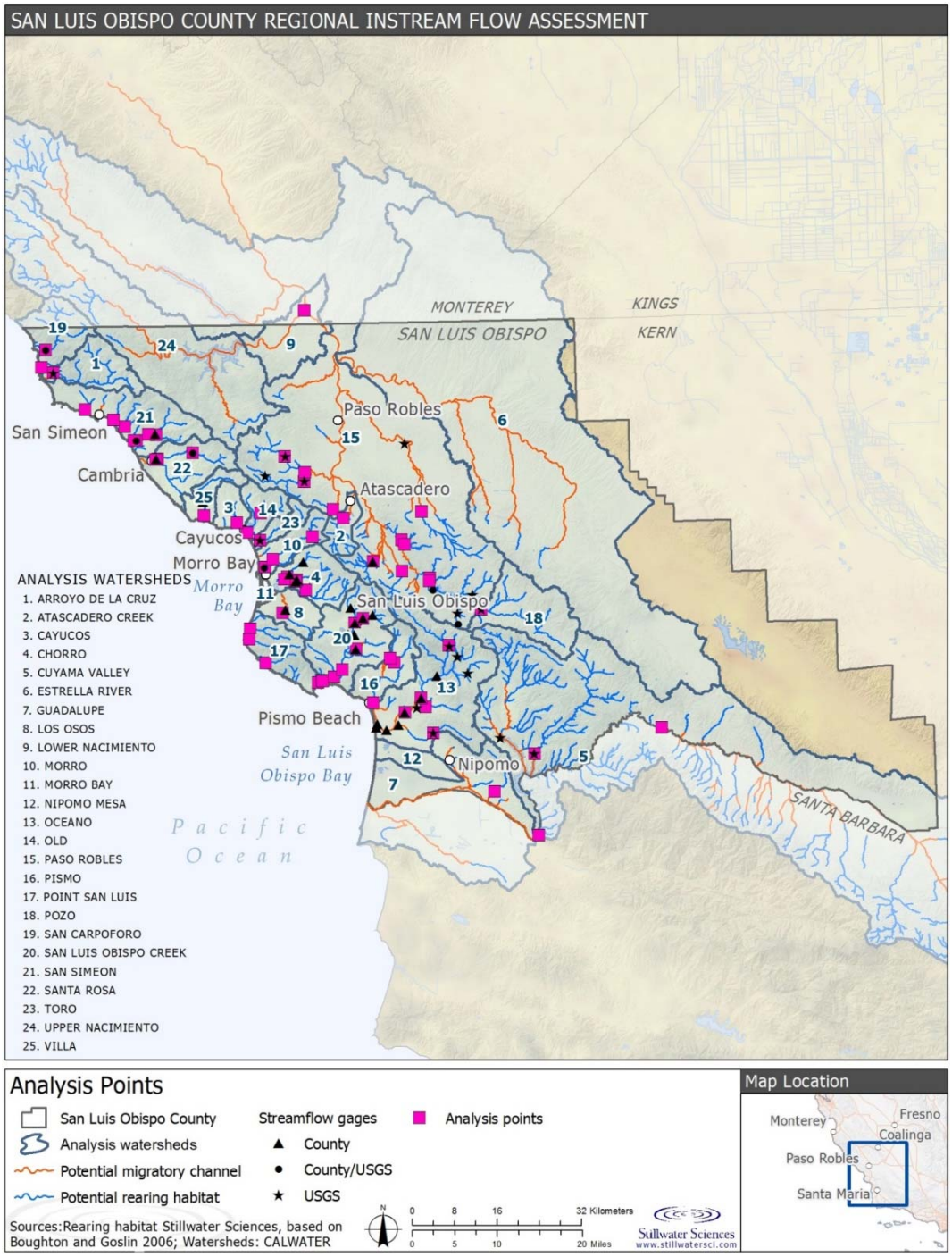
4.6.2 Results

Twelve sites were evaluated during mid-April 2013, and six of these sites were re-evaluated during early September 2013 to estimate both spring and summer flow requirements. Based on measurements of suitable habitat for specific Steelhead life stages, flows to support Steelhead in County streams during spring range from 0.5 cfs to 4 cfs. Flows of this magnitude during spring were sufficient to provide fry and juvenile rearing and feeding habitat, migratory connectivity for juveniles between habitat units, and benthic macroinvertebrate production. Flows to support Steelhead during summer were observed to range from 0.25 cfs to 1 cfs. Flows of this magnitude provided sufficient water depth to provide fry and juvenile rearing habitat.

Analysis points were established within all County Analysis Watersheds with delineated high potential Steelhead rearing habitat. Predictive models were developed based on field assessments and watershed characteristics, including drainage area. Based on the models, EWD was estimated for each Analysis Point based on spring and summer flow requirements. Due to the large number of locations for which EWD is estimated throughout the County, an interactive web-based map was developed, and is available at: http://geo.stillwatersci.com/maps/slo_rifa/instreamflowassessment.html

To compare EWD estimates with existing conditions, streamflow data were examined for 16 USGS and two County-maintained gages. EWD for spring flows are mostly achieved on average at all gage locations over the period of record, whereas summer flows are either barely achieved, or not at all.

Figure 4. Map of Instream Flow Analysis Points and Stream Flow Gages



4.6.3 Discussion and Recommendations

Overall, it appears that spring flows are sufficient to provide Steelhead habitat in many Analysis Watersheds under existing conditions. However, summer flows are not sufficient to support Steelhead in most Analysis Watersheds, despite the NOAA analysis of Boughton and Goslin (2006) results that indicated these watersheds have a high potential for Steelhead rearing to occur based on intrinsic watershed characteristics, including perennial flows. It also appears based on channel morphology that even relatively low flows (e.g., <0.5 cfs) during summer allow Steelhead to persist in Analysis Watersheds throughout the County.

In summary, the following is recommended based on the completed analysis:

- Broaden the definition of EWD to consider additional natural resources, especially in the County's 26 coastal lagoons where tidewater goby occur.
- Analyze current streamflow conditions compared with historical streamflow conditions, with consideration for water year type (i.e., wet, normal, or dry) and EWD. This would include the compilation and maintenance of daily mean discharge data for current County stream gaging stations.
- Monitor streamflows in all 25 Analysis Watersheds during spring and summer to determine which streams are exceeding EWD estimates and which are not. Monitoring could include establishment of additional gages, or periodic direct measurements of streamflow during spring and summer.
- Determine if Analysis Watersheds not achieving predicted EWD are mischaracterized in the NOAA analysis as having a high potential to support rearing Steelhead, or if other factors are causing flow reductions. Results could be used by resource managers to inform the prioritization of streams for protection, habitat restoration, and/or streamflow enhancement.
- Conduct intensive and more accurate estimates of Steelhead habitat relationships with instream flows within those watersheds with high Steelhead rearing potential and water management implications.

5. Conclusion

Watershed planning is an ongoing exercise in making connections towards healthier and more resilient communities. The process and conclusions described in this report represent the first in many steps towards a SLO County Watersheds Management Program. Through the compilation of data at a County-wide scale, resource professionals, community members and local agencies will better be able to understand the relationship between the natural and built environments, allowing for more informed land and resource management decisions. In addition, compiling data at a watershed scale starts to inform trends and correlations throughout county regions that, in time, may provide a basis for further focused analysis and implementation of management strategies unique to the environments they serve.

The following sections provide an outline of next steps proposed to build on these foundational efforts.

5.1 Next Steps – Building Resilient Watersheds

Returning to the vision of the Watershed Working Group and Technical Advisory Committee, moving forward we are tasked with engaging the community to steward our watershed resources for present and future generations. Stewardship relates to a responsibility or duty to safeguard valuable resources shared by the larger community and assumes an understanding of the resources to be protected as well as the implications of decisions related to such resources.

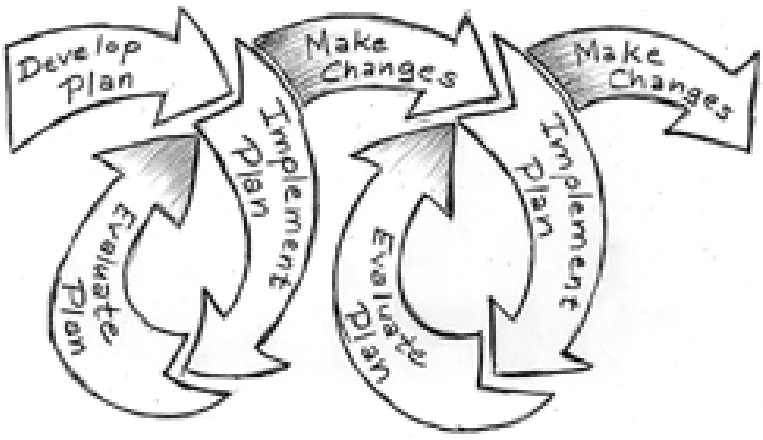
At the State level, the California Water Plan recognizes the importance of a watershed approach to land and resource management, identifying a number of policy and strategic practice recommendations. Policy recommendations focus on improving tracking, reporting, assessing, and sharing in relation to watershed changes and conditions. Strategic practice recommendations focus on improving the integration of watershed functions into project and program planning. Maintaining consistency with the California Water Plan will further support additional funds directed toward this effort.

One of the key findings of this project was a lack of information on watershed functions and their status or health. Healthy grassland, woodland, and wetland systems provide a host of watershed services, including water purification, ground water and surface flow regulation, erosion control, and streambank stabilization. The importance of these watershed services will only increase as water becomes an ever

more critical issue. By working toward a healthy, resilient watershed ecosystem, we are ensuring the availability of valued resources including water quality, water quantity, agricultural viability, and an environment rich in scenic and recreational opportunities. The financial value of these services becomes particularly apparent when the costs of protecting an ecosystem for improved water quality or quantity are compared with investments in new or improved infrastructure, such as purification plants and flood control structures. In many cases it is often cheaper and more efficient to invest in ecosystem management and protection than rely on external support of those resources. (http://www.fs.fed.us/ecosystemservices/watershed.shtml)

These services should be kept in the forefront of the minds of land and water managers. To encourage these considerations, it is important to be conscious of how we describe natural resources, the connections we make between cause and effect, the challenges, and the resources we immortalize in maps and planning documents. The natural environment presents an ever changing resource and thus, any process focused on maintaining and enhancing watershed services should be iterative in nature as described in Figure 8 below.

Figure 5. Iterative Plan Process



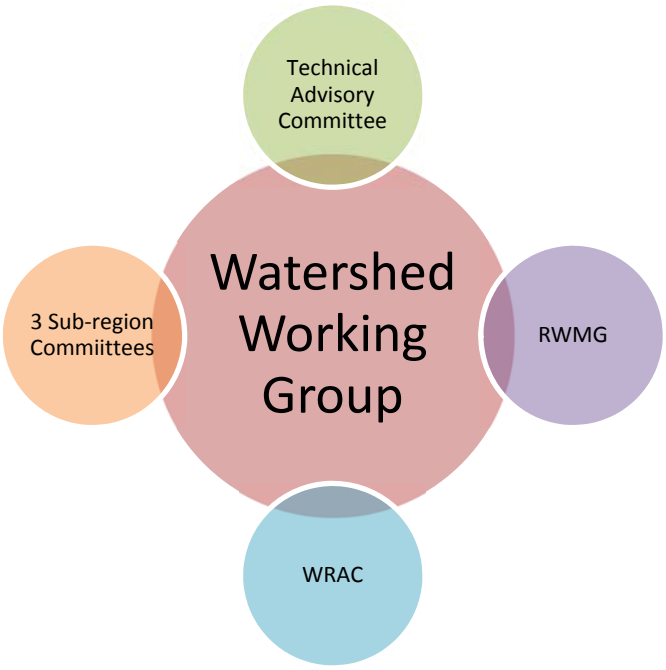
Source: EPA http://water.epa.gov/polwaste/nps/images/process.jpg

5.1.1 Project Methodology

The proposed approach to Phase 2 takes into consideration that water supply issues throughout the County are a high priority, that the largest community support would be gained by improving our understanding of threats to natural resources, and that a successful long-term strategy will need to be iterative in nature.

The County has three sub-regions that are used for IRWMP planning and are strongly supported by the community as a tailored approach to issue definition and solution identification. The proposed method continues to use the Watershed Working Group as the primary stakeholder guide to Phase 2, but would also emphasize sub-regional groups that would communicate unique needs and visions with the overarching Watershed Working Group. This approach to stakeholder involvement would encourage connectivity throughout the County where appropriate and open communication on differences between sub-regions. It would also ensure that we are moving forward as a community rather than as individuals.

Figure 6. Phase 2 Public Participation



In addition to this stakeholder structure, the RCDs will host a series of watershed forums to increase public awareness and participation with potential solutions. These forums will facilitate cooperation between local government, non-profit and citizen groups, and business helping each group play

effective roles in watershed management and become stewards of their local environments. The forums will enable groups to develop common goals by giving them a knowledge base to help understand each others' points of view and communicate more effectively.

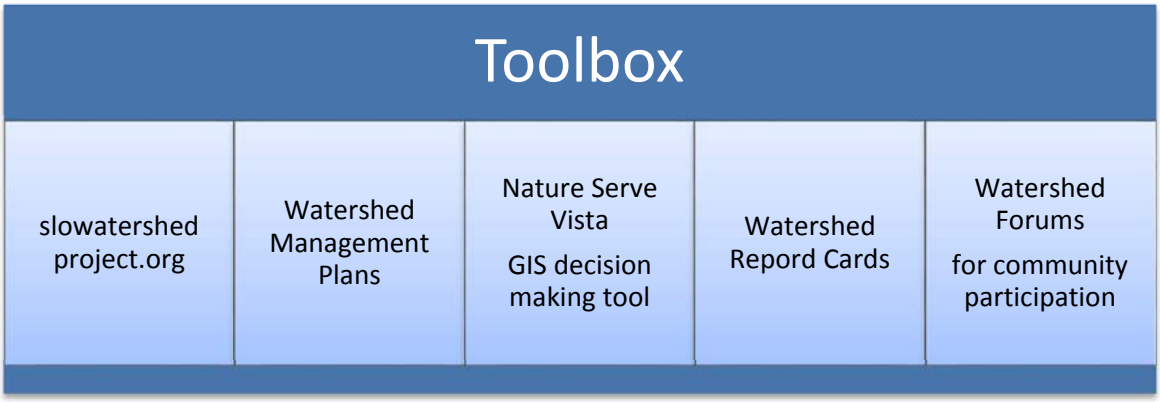
5.1.2 Goals

Based on our data gap assessment and compilation of known watershed information, our goals for Phase 2 are to answer the following questions:

1. What is the condition or health of each of our watersheds?
2. Which natural resources are threatened?
3. Do some watersheds have a higher value/benefit to the community than others? i.e. water supply, carbon sequestration, etc. How does a community value these benefits for land use planning?

Watershed management does not have a silver bullet and relies on many different tools to address community goals. Figure 10 shows a possible toolbox for our County that will be expanded over time.

Figure 7. Watershed Toolbox.



The Watershed Snapshots provided an “apples to apples” characterization of our watersheds without fully describing their health or placing a value on their functions or services. One of the underlying goals of any watershed management plan is to assess watershed conditions, preferably at the smallest management unit. The results of the assessment are then addressed by management activities tailored to different categories or conditions. Indicators can be used to tell us about status and trends for a variety of attributes of different systems. They help us understand system condition and can inform decisions affecting management and restoration of valued attributes and processes. To be effective,

they are usually organized into structures that help users clearly understand their meaning. For example, water characteristics such as temperature, dissolved oxygen (DO), pH, and concentrations of suspended sediments are not necessarily intuitively-understood by a non-technical audience but can be combined into a more user-friendly index of water quality to help regulators and the public understand water quality status and trends and whether there might be a need for particular regulations or investments in infrastructure. (Sacramento River Watershed Program, viewed 01-2014) One example of a system to organize indicators is called the Watershed Assessment Framework (WAF) (Figure 11) which was adopted in 2007, by the state of California as part of a strategy to inform and guide watershed management. It is based upon the US Environmental Protection Agency's (USEPA) Science Advisory Board's (SAB) approach (SAB, Young and Sanzone, 2002). Indicators and metrics were used in most of the plans reviewed in Phase 1; however, the detail varied widely. The two key features of metric selection are data availability and representativeness. Indicators and metrics will be reviewed at the sub-region scale to ensure these criteria are met.

"Indicator" is the term used to show what conditions are. "Metric" is the term used to measure the influence of a factor in the conditions of a watershed.

Possible indicators and metrics will be vetted through a sub-regional stakeholder process and may include:

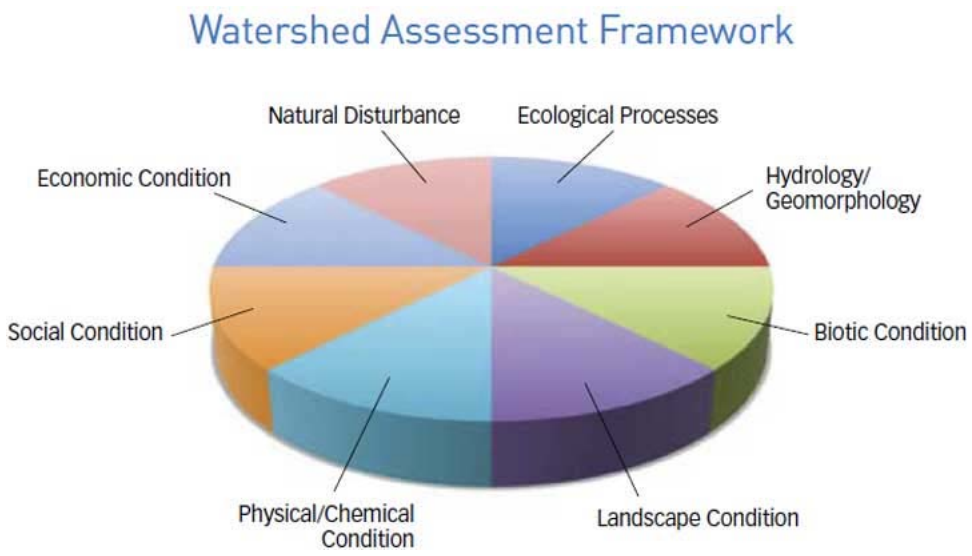
- Vulnerability to Development
- Acres of Wetlands
- Groundwater Recharge Rates
- Water Quality
- Source Water Protection
- Wildlife Habitat Conditions

This stakeholder driven process will result in a baseline description of watershed health across the county and potentially a way to compare our watersheds resulting in the ability to prioritize county-wide efforts.

These efforts could be further used to develop Watershed Report Cards that would translate a sub-set of the information into easily relatable and understandable "grades" or "bills of health". Organizations in California currently developing and using regional watershed-scale report cards based on the WAF include: SRWP; Los Angeles San Gabriel Rivers Watershed Council; Napa County; Sierra Nevada Alliance; UC Davis; Sonoma Ecology Center; Napa County Resource Conservation District; University of California,

Los Angeles; University of Southern California; San Francisco Estuary Project; San Francisco Estuary Institute; The Bay Institute; and the California Department of Water Resources (DWR). (Sacramento River Watershed Program, viewed 01-2014)

Figure 8. California Watershed Assessment Framework showing Essential Watershed Attributes



Source: Sacramento River Watershed Program, http://www.sacriver.org/files/images/reportcard/section1_3_framework_724.jpg

5.1.3 Focus Areas

Information and conditions for some watershed functions like groundwater recharge is very limited. During Phase 2, the RCDs, in conjunction with the Watershed Working Group and Technical Advisory Committee, will identify focus areas for which established metrics and pilot studies will be tested. This will allow for increased effectiveness in the process and ease in expanding the analysis to similar regional watersheds.

Focus areas will be chosen by the Watershed Working Group to garner community support for these efforts. Over time, every effort will result in one watershed or resource of interest from each sub-region to allow similarities and differences to be highlighted throughout the process and will ultimately provide for greater county-wide consistency by aligning processes and strategies where similarities exist.

Techniques for increasing our understanding of watershed conditions will depend on the final set of focus areas. Example techniques that could be replicated across the County include green infrastructure mapping, climate resiliency and adaption scenarios/plans, alliance level vegetation mapping, water budget development, Nature Serve Vista demonstration project, and others. To some degree, funding will affect which techniques are feasible.

Outcomes of Phase 2 could include active community engagement, metric and indicator identification, and detailed assessments in focus watersheds or resources.

5.1.4 Future Funding

Federal, state and local grants may be available for future project phases. Some examples of planning grants include:

- Sustainable Communities Planning Grant and Incentives Program (Strategic Growth Council)
- Integrated Regional Water Management Plan, Round 3 (Department of Water Resources)
- Climate Ready Program, if new funds become available after 2013 (State Coastal Conservancy)

There are also numerous implementation grant programs. These grants are often competitive and require a close nexus between the grant program and the proposed project. Private foundations are another possible funding source. Further work would be necessary to evaluate the feasibility of specific funding programs in relation to Phase 2.

In the absence of immediate funding, other means will be considered in parallel to reviewing grant and foundation opportunities. Strengthening partnerships between organizations could also be useful to address important data needs and priority projects by illuminating shared goals. Research driven programs like those through the Environmental Protection Agency (EPA) and U.S. Geologic Survey (USGS) could produce science driven research on local issues.

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California Natural Resource Agency. www.resources.ca.gov. Accessed January 2014

Potential steelhead over-summering habitat in the south-central / southern California coast recovery domain: maps based on the envelope method. Boughton, DA; Goslin, M. 2006

* *Individual snapshot resources are listed after each snapshot section*

Appendix A

Typical Watershed Products, Goods and Services

Source: California Water Plan, 2009. Adapted from Rivers of Life – Managing Water for People and Nature - Sandra Postel and Brian Richter – 2003

Typical Watershed Products, Goods and Services (also described as Ecosystem Services)	Benefit of Service
Provision of water supplies	
Provision of Food, fiber, fuel	Sustainable production of agricultural and forest products that are dependent on healthy productive soils, favorable climate and water conditions, and the availability of pollinators
Water purification/ waste treatment	Well managed watersheds produce clean, cool water generally useful for a broad range of beneficial uses. Virtually all freshwater used in California originates as precipitation that is intercepted, captured, routed and released from our watersheds.
Flood Mitigation	Healthy watersheds with adequate distributed wetlands and functional floodplains moderate the volume and timing of surface runoff reducing flood damage.
Drought mitigation/ flow attenuation	A healthy watershed works like a sponge to store and release water to both streams and groundwater. In California, healthy watersheds increase the residence time of water, and tend to store and release water longer into the dry season.
Provision of aquatic and terrestrial habitat	Uplands, rivers, streams, floodplains and wetlands provide necessary habitats for fish, birds, mammals, and countless other species, and generally sustain a strong level of biological diversity that provides wide benefits to society.
Soil fertility, health, productivity	Soil health and fertility is an essential component of primary ecosystem production, and critical for maintenance of important terrestrial, floodplain, riparian and wetland components and processes.
Nutrient, mineral cycling and delivery, carbon sequestration	Cycling of nutrients is necessary to maintain healthy, diverse biological systems, to sustain biological diversity that mediates disease, and sustains populations of native species.
Biodiversity maintenance	Diverse assemblages of species work to provide the services (including all those listed in this table) upon which societies depend. Conserving genetic diversity preserves options for the future, and increases the resilience of ecosystems in the face of the impacts of a changing climate.
Recreational opportunities	Swimming, fishing, hunting, boating, wildlife viewing, hiking, and skiing are all delivered or enhanced in healthy watersheds, often resulting in concurrent economic improvements in local communities reliant on recreation as a source of economic sustenance or growth.
Climate moderation/ buffering	Adequate diversification of a watershed ecological system

	will allow a more robust adaptation to rapid climate changes. That adaptation will better ensure that watershed ecosystem functions will continue to provide the goods, services and values of the systems we experience today.
Aesthetics	Quality of life is a major, but difficult to quantify benefit of watershed conditions. Pleasant surroundings, with clean air, clean water and adequate recreational opportunities have been shown to be beneficial across a broad spectrum of social structures.
Managing salinity gradients	Freshwater flow regimes can determine salinity gradients in deltas, coastal estuaries and near shore marine environments, a key to biological richness and complexity.

Typical watershed products, goods and services (also described as ecosystem services)	Benefit of Service
Provision of water supplies	Agriculture, municipal, industrial, and other beneficial uses
Provision of food, fiber, fuel	Sustainable production of agricultural and forest products that are dependent on healthy productive soils, favorable climate and water conditions, and the availability of pollinators
Water purification/waste treatment	Well managed watersheds produce clean, cool water generally useful for a broad range of beneficial uses. Virtually all fresh water used in California originates as precipitation that is intercepted, captured, routed, and released from watersheds in California and the Colorado River Basin.
Flood mitigation	Healthy watersheds with adequate distributed wetlands and functional floodplains moderate the volume and timing of surface runoff reducing flood damage.
Drought mitigation/flow attenuation	A healthy watershed works like a sponge to store and release water to both streams and groundwater. In California, healthy watersheds increase the residence time of water, and tend to store and release water longer into the dry season.
Provision of aquatic and terrestrial habitat	Uplands, rivers, streams, floodplains, and wetlands provide necessary habitats for fish, birds, mammals, and countless other species, and generally sustain a strong level of biological diversity that provides wide benefits to society.
Soil fertility, health, productivity	Soil health and fertility is an essential component of primary ecosystem production, and is critical for maintenance of important terrestrial, floodplain, riparian, and wetland components and processes.
Nutrient, mineral cycling and delivery, carbon sequestration	Cycling of nutrients is necessary to maintain healthy, diverse biological systems, to sustain biological diversity that mediates disease, and to sustain populations of native species.
Biodiversity maintenance	Diverse assemblages of species work to provide the services (including all those listed in this table) upon which societies depend. Conserving genetic diversity preserves options for the future and increases the resilience of ecosystems in the face of the impacts of a changing climate.
Recreational opportunities	Swimming, fishing, hunting, boating, wildlife viewing, hiking, and skiing are all delivered or enhanced in healthy watersheds, often resulting in concurrent economic improvements in local communities reliant on recreation as a source of economic sustenance or growth.
Climate moderation/buffering	Generally, a diversified watershed ecological system is more robust and resilient to rapid climate changes or other types of disturbance. Maintaining a resilient watershed ecosystem will be of critical importance in the face of a changing climate. That adaptation will better ensure that watershed ecosystem functions will continue to provide the goods, services, and values of the systems we experience today.
Aesthetics	Quality of life is a major, but difficult to quantify, benefit of watershed conditions. Pleasant surroundings, with clean air, clean water, and adequate recreational opportunities have been shown to be beneficial across a broad spectrum of social structures.
Managing salinity gradients	Freshwater flow regimes can determine salinity gradients in deltas, coastal estuaries and near-shore marine environments, a key to biological richness and complexity.

Note: Table content adapted from *Rivers for Life: Managing Water for People and Nature* (2003) written by Sandra Postel and Brian Richter.

Appendix B

Questionnaire to Help Guide Watershed Issue Prioritization for Phase 2: Survey Results

Water Resource Advisory Committee Meeting- December 4, 2013

Total Attendees: Roughly 50

Survey Participants: 15, representing roughly 30% of total attendees

Question 1

Which of the following grouping classifications could lead to improvements on local watershed management and or stewardship?

	Number of votes per category	Percentage of total votes per category
Group watersheds by improve, mitigate/prevent and maintain	3	20.1%
Group watersheds by Develop, Restore and Protect	4	26.3%
Group Watersheds By: (survey respondents choice)	4	26.3%
Do not classify watersheds	4	26.3%
Total Respondent's	15	100%

Comments: Group watersheds by dammed versus undammed; Group watersheds by Assess/Mitigate and Prevent/Implement; Group watersheds by Geographic Region

Question 2

In considering the prioritization of projects and programs aimed at accomplishing natural resource management goals, which of the following would represent the most effective solution?

County-wide approach which measures all watersheds against a common metric	3	20%
Sub-region approach which measures sub-regions against metrics specific to the region	11	73%
Other method?	1	7%

Total Respondent's	15	100%

Comments: Specific local issues should control prioritization

Question 2b

If you selected a regional based approach for Question #2, at what scale would you define those regions?

By water planning area	10	84%
Coastal vs Inland	1	8%
Other	1	8%
Total Respondent's	12	100%

Question 3

Should a flexible, decision making tool (e.g. Interactive GIS database) that allows municipal planners to explore different development scenarios or options in relation to natural resources:

Be created in addition to classifying watersheds and management strategies and be a high priority for phase2	6	40%
Be created in addition to classifying watersheds and management strategies and be a low priority for phase 2	3	20%
Be created instead of classifying watersheds and be a high priority	3	20%
Be created instead of classifying watersheds and be a low priority	0	0%
Should not be created	3	20%
Total Respondent's	15	100%

Comments: Should not be created for this use because planners would be inclined to not use their head/judgment for decision making

Question 4

If a watershed classification approach was used, who do you envision to be the primary audience? (circle all that apply) (Respondents selected multiple answers to this question)

County	12	18%
Other Municipalities	11	16%
Resource Conservation Districts	13	19%
Other conservation organizations	10	15%
Growers, ranchers, other land managers	9	13%
Community at Large	9	13%

Other	4	6%
Total Respondent's	68	100%

Comments: Other- Industry, RWQCB, Purveyors

Question 5

Which of the county watersheds do you consider to need greater focus and studying?

Comments: Arroyo Grande Creek, Santa Margarita, Jack Creek, Santa Rita Creek, Nipomo-Suey Creek, Pismo Creek, those with flood problems, those with recharge opportunities.

IRWM Countywide Master Watershed Planning Project, Phase 2 Development

Summary of Municipality Interviews

Total Respondents: 12

Question 1

Would you or someone from your organization participate in a working group to guide the WMP development?

No	4	33%
Yes	6	50%
Maybe	2	17%
Responses Tallied	12	100%

Question 2

How do you want to be updated on this WMP Process? Some respondent's asked to participate in more than one way.

Email	12	55%
Workshops	5	22.5%
Review of Draft Documents	5	22.5%
Responses Tallied	22	100%

Question 3

Do you currently use watershed management plans in your organization?

Yes	3	25%
No	9	75%
Not Sure	0	0%
Responses Tallied	12	100%

Question 4

How do you use WMPs in your organization?

I don't	7	58%
I don't understand how WMPs apply to our work	0	0%
I don't have time of staff support to cross reference WMPs in our work	1	8%

Other	4	34%
Responses Tallied	12	100%

Question 5

Have you or your organization ever participated in the creation of a collaborative WMP?

Yes	4	36%
No	6	55%
Not Sure	1	9%
Responses Tallied	11	100%

Question 6

How helpful have current WMPs been for you?

Very useful	1	8%
Medium Usefulness	1	8%
Not Useful	9	76%
Other	1	8%
Responses Tallied	12	100%

Question 7

What would you like to see used for Countywide watershed management planning approach and how? Some respondents selected multiple approach styles when answering this question.

Identification of management strategies by watershed for land use planning	8	25%
Process that streamlines implementation of conservation projects with permitting agencies	7	22%
Prioritization of conservation needs byy watershed and between county watersheds	7	22%
Communal/Collaborative GIS tools	6	19%
Mitigation banks or similar	4	12%
Others	0	0%
Responses Tallied	32	100%

Question 8

Do you have sufficient data with which to manage water conservation locally?

Yes	5	42%
No	4	33%
Unsure	3	25%
Responses Tallied	12	100%

Question 9

Which data sources do you most commonly rely upon in making your conservation management decisions? Some respondent's selected multiple sources when answering this question.

WMPs	3	13%
County Flood Reports	5	23%
Growth management plans	3	13%
Transportation reports	1	5%
Predesignated conservation plans created from agencies outside this region	2	10%
Other	8	36%
Responses Tallied	22	100%

Question 10

Do you use GIS mapping and/or layering in your (conservation) planning work?

Yes	7	58%
No	3	25%
Sometimes	2	17%
Don't Know	0	0%
Responses Tallied	12	100%

Question 11

What is your interest level in utilizing a conservation focused GIS system in collaboration with other regional Cities, Utilities, CSD's, County and Conservation Organizations?

Very interested	7	58%
Medium Interest	3	25%
Low interest	2	17%
Responses Tallied	12	100%

Other Comments Captured:

- Sees some stormwater and water supply connections
- Avila gets all current water from AG Watershed and not locally & has consultant as manager. No sure of water supply connection
- greatly understaffed but see stormwater connection
- One respondent had these comments:
    - 1. Would be interested to look over draft documents periodically. 2. priority is providing water & wastewater services to community - don't initiate new projects or installations often. 3. Watershed

management plans are not relevent to their authority (non-regulatory) 4. Do not have good internal database (not enough on microclimates & irrigation) 5. WMP could be useful in project planning & impacts associated with them, (need a "how to use" guide)

- One respondent had these comments:
  Concerned about regulatory element of watershed management plans. Must be understanding of City autonomity. Provide solutions and suggestions for proactive measures but not policy change focused. Have to get City Council buy-in to move forward. Focus on flexibility of project application with regulatory agencies.
- One respondent had these comments:
  - A watershed plan that is non-regulatory, focused on uniqueness of watershed areas for flexibility of project application with regulatory agencies would be most ideal.
- One respondent had these comments:
  Would peer review plans, Have an EIR they use related to Fiscalini Ranch which includes their portion of Santa Rosa Creek management, use plans only when related to areas they manage, most plans are outside their management area, they have a water conservation specialist to manage a retrofit program, have new demand reports and seasonal use data which is adaptive from historical water use
- One respondent had these comments:
  Future full time stormwater manager would be an ideal participant to be involved in future planning, do not use plans because they don't have one AND current IRWM plan doesn't have adequate or relevant info, participated in creating the Carmel River Watershed plan, would like to see more watershed data on groundwater recharge areas, use GIS frequently

Appendix C

Instream Flow Study

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Coastal San Luis RCD to provide this study for the appendix at a later date

Appendix D

Map of SLO Watersheds (see next page)

San Luis Obispo County Watersheds

Monterey County
Kings County
Tulare County
Kern County
Santa Barbara County
Ventura County

Big Creek - San Carpoforo Area
San Simeon - Arroyo de la Cruz Area
Nacimiento River
Estrella River
Cholame Creek
Lower Salinas - Paso Robles Creek Area
Santa Rosa Creek Area
Huer Huero Creek
Lower San Juan Creek
Cayucos Creek - Whale Rock Area
Mid Salinas - Atascadero Area
Morro Bay
Upper San Juan Creek
Soda Lake
Upper Salinas - Santa Margarita Area
San Luis Obispo Creek
Coastal Irish Hills
Pismo Creek
Arroyo Grande Creek
Huasna River
Alamo Creek
Black Sulphur Spring
Cuyama River
Santa Maria River
Nipomo-Suey Creeks

Paso Robles
Shandon
Cambria
Atascadero
Morro Bay
San Luis Obispo
Arroyo Grande

State Hwy 1
State Hwy 46
State Hwy 41
US Hwy 101
State Hwy 58

RESOURCE CONSERVATION DISTRICTS

N

0 4.25 8.5 17 25.5 34 Miles

Appendix E. Standards/Guidance for Developing Watershed Plans

Agency	Title	Minimum Elements	Source	Notes
U.S. EPA	Handbook for Developing Watershed Plans to Restore and Protect Our Waters.	Identify causes and sources of pollution; Determine load reductions needed; Develop management measure to achieve goal; Develop implentation schedule; Develop interim milestones to track implemtnation of management measures; Develop criteria to measure progress; Develop monitoring component; Develop information/education component; Identify technical and financila assistance need to implement plan	http://water.epa.gov/polwaste/nps/handbook_index.cfm	These elements are required to receive 319h Clean Water funds
CA Department of Fish and Wildlife	None available.	None available.	Personal commuication with CDFW staff	Steelhead trout focus is required to receive Fisheries Restoration Grant funds.
CA Department of Conservation/ CA Resource Agency	California Watershed Assessment Manual	Voluntary, no minimum.	http://cwam.ucdavis.edu/	Guidance document for CA practicioners
County	COSE Implementation Strategy WR 5.1.1	Watershed management plans should incorporate the information contained in the County's Source Water Assessments (SWAs) and Watershed Sanitary Surveys (WSSs), and should also include: a. Water quality monitoring data; b. Activities and sources of contamination; c. Watershed control and management practices; and d. An evaluation of the system's ability to meet surface water treatment requirements and recommendations for corrective actions.	http://www.slocounty.ca.gov/Assets/PL/Elements/COSE.pdf	

Appendix F

Data Gap Chart- North Coast Planning area (see next page)

- = complete data
/ = partial data
X = no data
Grey Shading indicates critical issue link

Watershed Name	Primary Issue	Watershed Management	Microclimate	Geology And Soils	Stream Gage	Hydrology Models	Peak Flow	Base Flow	Flood Risk Reduction	Vegetation	Invasive Species	Special Status Species	Stream Habitat	Fish Passage	Land Use Data	Potential Growth	Other needed	Demographics	Water Management	Water Source	Key Groundwater	Water Budget	Water Uses	Watershed	Major Changes	Climate Change	Tributary Health	Water Quality	Groundwater	Description of Data Gap
Big Creek-San Carpoforo Area	Seawater Intrusion Into GW Basin	X	--	--	/	X	/	/	X	/	X	/	/	X	--	--	--	--	--	--	X	X	--	--	--	X	X	X	X	
	Limited GW Basin Yield	X	--	--	/	X	/	/	X	/	X	/	/	X	--	--	--	--	--	--	X	X	--	--	--	X	/*	X	X	* Determination of tributary health and strategies for increasing/capturing flows
	Outdated Groundwater Basin Data	X	--	--	/	X	/	/	X	/	X	/	/	X	--	--	--	--	--	--	X	X	--	--	--	X	X	X	X	
Santa Rosa Creek	Surface Flow Quantity	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/*	--	--	--	X	X	X	--	*water budget data limited by age
	Surface Water Temperature	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	X	X	/	--	
	Low Dissolved Oxygen in Lagoon	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	/	X	X	--	
	Fine Sediment in Lower Reaches	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	/	X	X	--	
	Fish Passage Barriers	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	/	X	/	--	Identified: action ready
	Non-Native Invasive Species	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	/	X	/	--	Identified: action ready
	Sedimentation	--	--	--	--	/*	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	/	X	X	--	* Current Hydrology Models from 2002 outdated?
	Water Quantity	--	--	--	--	/*	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	--	* Current Hydrology Models from 2002 outdated?
	GW Basin Seawater Intrusion	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	X	X	X	--	
	GW Quality-Chloride	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	--	/	X	X	--	
	Outdated Basin Studies- Villa Valley Basin	--	--	--	--	/	--	--	--	/	/	/	--	--	--	--	--	--	--	--	X	X	--	--	--	/	X	/	X	
Cayucos Creek-Whale Rock Area	Threat to Lagoon	X	/	--	/	X	/	/	--	X	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	X	--	
	Loss of Riparian Width	X	/	--	/	X	/	/	--	X	X	/	/	--	--	--	/*	--	--	--	X	X	--	--	--	X	/	/	--	* Assess landuse patterns that may have an effect on riparian vegetation - water quality not assessed for cotton tail and old creeks
	Lack of Enforcement	X	/	--	/	X	/	/	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	/	/	/	--	Identified: action ready
	Water Quantity	X	/	--	X	X	X	X	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	/*	* GW basin should be reassessed taking into consideration climate change impacts
	Sedimentation	X	/	--	/	X	/	/	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	/	X	/	--	
	Sea Water Intrusion (Cayucos Valley Basin)	X	/	--	/	X	/	/	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	/	X	--	
	Nitrates	X	/	--	/	X	/	/	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	/	X	X	--	
	Outdated Basin Study- Cayucos Valley Basin	X	/	--	/	X	/	/	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	/	/	X	
	Alluvial Water Deposits Subject to Drought Impacts	X	/	--	X	X	X	X	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	X	
	Cayucos Creek 303(d) listed for enterococcus	X	/	--	X	X	X	X	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	--	X	
	Toro Creek 303(d) listed for fecal coliform and low dissolved oxygen	X	/	--	X	X	X	X	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	--	X	
	Outdated Groundwater Basin Analysis- Toro Valley	X	/	--	/	X	/	/	--	/	X	/	/	--	--	--	--	--	--	--	X	X	--	--	--	X	/	/	X*	* Deterine impacts to vegetation and analyze land use impacts - GW basin health analysis limited by age of study and lack of climate change impact analysis
San Simeon-Arroyo de la Cruz	Loss of Riparian Vegetation	X	--	--	--	--	--	--	--	X	/	--	/	--	--	--	/*	--	--	--	X	/	--	--	--	/	X	/	/	* Assess landuse patterns that may have an effect on riparian vegetation
	Lack of Instream Flow	X	--	--	--	X	X	X	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	X	X	/	/	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Excessive Sedimentation	X	--	--	--	X	--	--	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	/	X	/	/	Identified: action ready - GW basin health analysis limited by age of study and lack of climate change impact analysis
	Gravel Mining	X	--	--	--	--	--	--	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	/	/	/	/	Identify prjects and BMP's to address issue - GW basin health analysis limited by age of study and lack of climate change impact analysis
	Grazing/Cattle	X	--	--	--	--	--	--	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	/	/	X	/	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Low Dissolved Oxygen Kills Fish in Lagoon	X	--	--	--	X	X	X	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	X	/	X	/	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Water pollution	X	--	--	--	--	--	--	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	/	/	X	/	Identified: action ready - GW basin health analysis limited by age of study and lack of climate change impact analysis
	Poaching	X	--	--	--	--	--	--	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	/	/	/	/	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Sea Water Intrusion (Cayucos Valley Basin)	X	--	--	--	--	--	--	--	/	/	--	/	--	--	--	--	--	--	--	X	/	--	--	--	X	/	X	X	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Water Supply of San Simeon CSD is at Certified Level III Severity Rating	X	--	--	--	X	X	X	--	/	/	--	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	X	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Arroyo de la Cruz 303(d) listed for Escherichia coli, low dissolved oxygen	X	--	--	--	X	X	X	--	/	/	--	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	X	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Pico Creek 303(d) listed for low dissolved oxygen, grazing related and natural sources	X	--	--	--	X	X	X	--	/	/	--	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	X	GW basin health analysis limited by age of study and lack of climate change impact analysis
	San Simeon Creek 303(d) listed for chloride, nitrate, low dissolved oxygen, sodium	X	--	--	--	X	X	X	--	/	/	--	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	X	GW basin health analysis limited by age of study and lack of climate change impact analysis
	Outdated Hydrological Studies for Area GW Basins	X	--	--	--	X	X	X	--	/	/	--	/	--	--	--	--	--	--	--	X	X	--	--	--	X	X	/	X	
Morro Bay	Accelerated sedimentation	--	--	--	--	/	/	/	--	/	--	/	/	--	--	--	--	--	--	--	X	X	--	--	--	--	--	--	/	
	Bacterial contamination	--	--	--	--	/	/	/	--	/	--	/	/	--	--	--	--	--	--	--	X	X	--	--	--	--	--	--	/	
	Elevated nutrient levels	--	--	--	--	/	/	/	--	/	--	/	/	--	--	--	--	--	--	--	X	X	--	--	--	--	--	--	/	
	Toxic pollutants	--	--	--	--	/	/	/	--	/	--	/	/	--	--	--	--	--	--	--	X	X	--	--	--	--	--	--	/	
	Scarce freshwater resources	--	--	--	--	/	/	/*	--	/	--	/	/	--	--	--	--	--	--	--	X	X	--	--	--	--	--	--	/	* there is no stream gage on Warden Creek. Existing stream gages may not capture base flows.
	Preserving biodiversity	--	--	--	--	/	/	/	--	/	--	/	/	--	--	--	--	--	--	--	X	X	--	--	--	--	--	--	/	
	Environmentally balanced use	--	--	--	--	/	/	/	--	x		/	x	--	--	--	--	--	--	--	X	X	--	--	--	--	--	--	/	
Of the 5 watersheds in the North Coast sub-region, what number of watersheds have a data gap linked to a primary issue		**27**	**0**	**0**	**2**	**13**	**7**	**14**	**0**	**9**	**4**	**11**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**16**	**17**	**0**	**0**	**20**	**20**	**18**	**16**	
Summary Line					x	x	x	x		x	x	x	x				x				x	x			x	x	x	x	
High	Climate Change Impact, Tributary Health, Water Quality																												
Medium	Hydrology Models, Base Flow, Special Status Willdlife, Groundwater Percolation Areas, Water Budget, Groundwater Basin Health																												
Low	All Others																												

KEY

X	Complete Data Gap
X	Data Gap is related to Issue
/	Partial Data Gap
	Indicates a link between data item and critical issue
-	Complete Data
/	Partial Data Gap
X	complete data gap

Individual snapshot priority key	
low	<10
mediu	10-19
high	20+

Appendix G

Data Gap Chart- North County Planning area (see next page)

- = complete data
/ = partial data
X = no data
Grey Shading indicates critical issue link

		Watershed Managemetn Plan	Physical Setting		Hydrology					Biological Setting					Land Use			Demographics	Water Supply				Water Uses	Major Changes in the Watershed	Climate Change Considerations	Watershed Health			
Watershed Name	**Primary Issue**	**Watershed Managemetn Plan(s) Needed**	**Microclimate Data (ie. rain and temp)**	**Geology Analysis**	**Stream Gage**	**Hydrology Models**	**Peak Flow**	**Base Flow**	**Flood Risk Identification and Assessment**	**Vegetation Cover Identification**	**Invasive Species Identification and Assessment**	**Special Status Wildlife / Steelhead Trout Habitat Analysis**	**Stream Habitat Inventory**	**Fish Passage Barriers Analysis**	**Land Use Data**	**Potential Growth Areas**	**Other needed land use information**	**Demographic Data**	**Water Management Entities**	**Water Sources**	**Key Groundwater Percolation Area(s)**	**Water Budget**	**Water Uses**	**Watershed History/Major Changes**	**Climate Change Impact Analysis**	**Tributary Health Analysis**	**Water Quality**	**Groundwater Basin Health Analysis**	**Description of Data Gap**
Black Sulphur Spring	Groundwater Quality	X	--	--	X	X	X	X	--	--	/	/	--	--	--	--	--	--	--	--	X	/	--	--	/	X	X	X	Issues are not well defined for this watershed.
	Groundwater Quantity	X	--	--	X	X	X	X	--	--	/	/	--	--	--	--	--	--	--	--	X	X	--	--	X	X	X	X	Issues are not well defined for this watershed.
	Outdated Studies of the GW Basin	X	--	--	X	X	X	X	--	--	/	/	--	--	--	--	--	--	--	--	X	/	--	--	X	X	X	X	Issues are not well defined for this watershed.
Soda Lake	Groundwater Quality	X	--	--	X	--	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	--	--	--	/	X	X	X	
	Groundwater Quantity	X	--	--	X	--	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	--	--	--	X	X	/	X	
	Soda Lake 303(d) listed for ammonia	X	--	--	X	--	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	--	--	--	X	X	--	/	
	Outdated Studies of the GW Basin	X	--	--	X	--	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	--	--	--	X	X	X	X	
Cholame Creek	Significant Water Level Declines (Paso Robles Basin)	X	/	--	X	/	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	*	--	--	X	X	/	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Limited Groundwater Quality Information- Cholame Valley Basin	X	/	--	X	/	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	/	--	--	/	X	X	X	
	No Yield Information and Limited Hydrogeologic Information for Cholame Basin	X	/	--	X	/	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	X	--	--	X	X	/	X	
	Cholame Creek 303(d) listed for boron, chloride, electrical conductivity, Escherichia coli, fecal coliform, low dissolved oxygen, and sodium	X	/	--	X	/	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	/	--	--	X	X	/	/	
	Groundwater quality	X	/	--	X	/	X	X	X	/	/	/	X	--	--	--	--	--	--	--	X	/	--	--	X	X	X	X	
Estrella River	Significant Water Level Declines (Paso Robles Basin)	X	--	--	--	--	--	--	X	/	/	/	X	--	--	--	--	--	--	--	X	*	--	--	X	X	--	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Estrella River 303(d) listed for boron, chloride, fecal coliform, sodium and pH	X	--	--	--	--	--	--	X	/	/	/	X	--	--	--	--	--	--	--	X	/	--	--	X	X	--	/	
	Groundwater Quality	X	--	--	--	--	--	--	X	/	/	/	X	--	--	--	--	--	--	--	/	/	--	--	X	X	--	X	
Huer Huerro Creek	Significant Water Level Declines (Paso Robles Basin)	X	--	--	/	--	/	/	X	/	/	/	X	X	--	--	--	--	--	--	/	*	--	--	X	X	X	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Groundwater Quality	X	--	--	/	--	/	/	X	/	/	/	X	X	--	--	--	--	--	--	/	/	--	--	X	X	X	X	Issues are not well defined for this watershed.
Nacimiento River	Significant Water Level Declines (Paso Robles Basin)	--	--	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	X	*	--	--	X	X	/	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Las Tablas Creek 303(d) listed for metals	--	--	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	/	/	--	--	X	X	--	/	
	Nacimiento Reservoir 303(d) listed for mercury, metals	--	--	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	/	/	--	--	X	X	--	/	
	Groundwater Quality	--	--	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	X	/	--	--	X	X	/	X	
	Steelhead Passage	--	--	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	/	/	--	--	X	X	/	X	
Lower Salinas - Paso Robles Creek Area	Significant Water Level Declines (Paso Robles Basin)	X	--	--	--	--	--	X--	/	/	X	/	--	--	--	--	--	--	--	--	X	*	--	--	X	X	/	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Salinas River 303(d) listed for sodium and chloride	X	--	--	--	--	--	--	/	/	X	/	--	--	--	--	--	--	--	--	/	/	--	--	X	X	--	/	
	Groundwater Quality	X	--	--	--	--	--	--	/	/	X	/	--	--	--	--	--	--	--	--	/	/	--	--	/	X	X	X	
	Steelhead Passage	X	--	--	--	--	--	--	/	/	X	--	--	--	--	--	--	--	--	--	/	/	--	--	X	X	X	X	
Lower San Juan Creek	Significant Water Level Declines (Paso Robles Basin)	X	/	--	X	--	X	X	/	/	X	/	X	--	--	--	--	--	--	--	/	*	--	--	X	X	X	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Groundwater Quality	X	/	--	X	--	X	X	/	/	X	/	X	--	--	--	--	--	--	--	/	/	--	--	/	X	X	X	Issues are not well defined for this watershed.
Upper San Juan Creek	Significant Water Level Declines (Paso Robles Basin)	X	--	--	X	/	X	X	X	/	X	/	X	--	--	--	--	--	--	--	X	*	--	--	X	X	X	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Groundwater Quality	X	--	--	X	/	X	X	X	/	X	/	X	--	--	--	--	--	--	--	/	/	--	--	/	X	X	X	Issues are not well defined for this watershed.
Mid Salinas - Atascadero Area	Significant Water Level Declines (Paso Robles Basin)	X	/	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	X	*	--	--	X	X	X	*	* Paso Robles Basin study limited by lack of draw information from private wells
	Groundwater Quality	X	/	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	/	/	--	--	/	X	X	X	
	Atascadero (Hale) Creek 303(d) listed for chloride, Escherichia coli, fecal coliform, low dissolved oxygen, and sodium	X	/	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	/	/	--	--	/	X	X	X	
	Limited Groundwater Basin Information (Rinconada Basin)	X	/	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	X	X	--	--	X	X	X	X	
	Steelhead Passage	X	/	--	--	--	--	--	/	/	/	/	--	--	--	--	--	--	--	--	X	X	--	--	X	X	X	X	
Upper Salinas - Santa Margarita Area	No Comprehensive Studies to Determine the Perennial Yield (Pozo Basin)	X	--	--	X	/	X	X	--	/	/	/	X	--	--	--	--	--	--	--	X	X	--	--	X	X	/	X	
	Declining Groundwater Levels	X	--	--	X	/	X	X	--	/	/	/	X	--	--	--	--	--	--	--	X	X	--	--	X	X	/	X	
	Salinas River 303(d) listed for sodium and chloride	X	--	--	X	/	X	X	--	/	/	/	X	--	--	--	--	--	--	--	X	X	--	--	/	/	--	X	
	Outdated information for Pozo GW Basin	X	--	--	X	/	X	X	--	/	/	/	X	--	--	--	--	--	--	--	X	X	--	--	X	X	/	X	
Of the 11 watersheds in the Inland-North County sub-region, what number of watersheds have a data gap linked to a primary issue			**1**	**0**	**14**	**2**	**16**	**16**	**1**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**14**	**0**	**0**	**29**	**29**	**15**	**25**	

		X	complete data gap
			Individual snapshot priority key
Summary Line	x x x x x x x x x x		low <10
			medium 10-19
High	Climate Change Impacts, Tributary Health, Groundwater Basin Health		high 20+
Medium	Stream Gages, Peak and Base Flow, Groundwater Percolation Areas, Water Budget, Water Quality		
Low	All Others		

KEY		
X	Complete Data Gap	
X	Data Gap is related to Issue	
/	Partial Data Gap	
	Indicates a link between data item and critical issue	
-	Complete Data	
/	Partial Data Gap	

Appendix H

Data Gap Chart- South County Planning area (see next page)

- = complete data
/ = partial data
X = no data
Grey Shading indicates critical issue link

Watershed Name	Primary Issue	Watershed Management Plan	Microclimate Data	Geology	Stream Gage	Hydrology Models	Peak Flow	Base Flow	Flood Risk Identification and Ass	Vegetation Cover Identification	Invasive Species Identification ar	Special Status Wildlife / Steelhea	Stream Habitat Inventory	Fish Passage Barriers	Land Use	Potential Growth Areas	Other needed land use informat	Demographic Data	Water Management Entities	Water Sources	Key Groundwater Percolation Ar	Water Budget	Beneficial Water Uses	Watershed History/Major Chang	Climate Change Impact Analysis	Tributary Health Analysis	Surface Water Quality	Groundwater Basin Health Analy	Description of Data Gap
		Physical Setting			Hydrology					Biological Setting					Land Use			Demographics	Water Supply				Water Uses	Major Changes in the Watershed	Climate Change Considerations	Watershed Health				
Alamo Creek	Sedimentation of Twitchell Reservoir primarily from Cuyama River	X	--	/	/	/	/	/	/	/*	X	/	X	--	--	--	--	/	/	X	X	X	--	/	/	X	X	X	Primary issues are not well defined. * Vegetation data is over 10 years old.
Arroyo Grande Creek	Surface Water Quality - Temperature	--	/	--	--	--	--	/	--	/	/	/	/	--	--	--	--	/	--	--	/	X	--	--	/	/	/	/	See Surface Flow Quantity.
	Surface Water Quality - Nutrients and Dissolved Oxygen	--	/	--	--	--	--	/	--	/	/	/	/	--	--	--	--	/	--	--	/	X	--	--	/	/	/	/	
	Surface Flow Quantity	--	/	--	--	--	--	/*	--	/	/	/	/	--	--	--	--	/	--	--	/	X	--	--	/	/	/	/	*It is unknown if existing stream gages capture base flows.
	Fish Passage Barriers	--	/	--	--	--	--	/	--	/	/	/	/	--	--	--	--	/	--	--	/	X	--	--	/	/	/	/	See Surface Flow Quantity.
	Erosion and Sedimentation	--	/	--	--	--	--	/	--	/	/	/	/	--	--	--	--	/	--	--	/	X	--	--	/	/	/	/	
	Flood Management	--	/	--	--	--	--	/	--	/	/	/	/	--	--	--	--	/	--	--	/	X	--	--	/	/	/	/	
Coastal Irish Hills	Residential development; loss of habitat	--	/	--	X	X	X	X	X	/*	X	/	X	--	--	/	--	--	X	/	X	X	--	--	/	X	X	--	*Vegetation cover data is not linked spatially in GIS and is not at the alliance level to accurately describe habitat.
	Agricultural development; loss of habitat	--	/	--	X	X	X	X	X	/*	X	/	X	--	--	/	--	--	X	/	X	X	--	--	/	X	X	--	*Vegetation cover data is not linked spatially in GIS and is not at the alliance level to accurately describe habitat.
	Sedimentation and loss of riparian cover - over grazing of sensitive areas	--	/	--	X	X	X	X	X	/	X	/	X*	--	--	/	--	--	X	/	X	X	--	--	/	X	X	--	*A stream habitat inventory provides basic instream and riparian habitat information.
	Proliferation of non-native species	--	/	--	X	X	X	X	X	/	X	/	X*	--	--	/	--	--	X	/	X	X	--	--	/	X	X	--	*A stream habitat inventory provides basic instream and riparian habitat information.
	Habitat degradation related to recreation	--	/	--	X	X	X	X	X	/*	X	/	X	--	--	/	--	--	X	/	X	X	--	--	/	X	X	--	*Vegetation cover data is not linked spatially in GIS and is not at the alliance level to accurately describe habitat.
Cuyama River	Sedimentation of Twitchell Reservoir	X	--	--	/	/	--	/	--	/	X	/	X	--	--	X	/	--	/	/	/	/	--	/	/	X	X	--	
	Groundwater Supplies	X	--	--	/	/	--	/	--	/	X	/	X	--	--	X	/	--	/	/	/	/*	--	/	/	X	X	--	*Previous studies have acknowledged limited data. A USGS/County of Santa Barbara study is expected to be complete in 2014.
Huasna River	Sedimentation of Twitchell Dam primarily from Cuyama River	X	--	/	/	X	/	/	/	/*	/	/	X	--	--	/	/	--	/	/	X	X	--	/	/	X	X	X	Issues are not well defined for this watershed. * Vegetation data is over 10 years old.
Nipomo-Suey Creeks	Flooding	--	/	--	X	X	/	/	--	/	/	/	X	--	--	--	/	--	/	/	X	X	X	--	/	/	/	/	
	Habitat Fragmentation	--	/	--	X	X	/	/	--	/*	/	/	X	--	--	--	/	--	/	/	X	X	X	--	/	/	/	/	*Vegetation cover data is not linked spatially in GIS and is not at the alliance level.
	Surface Water Quality - Fecal Coliform & Sediment	--	/	--	X	X	/	/	--	/	/	/	X	--	--	--	/	--	/	/	X	X	X	--	/	/	/	/	
	Groundwater Quantity	--	/	--	X	X	/	/*	--	/	/	/	X	--	--	--	/	--	/**	/	X	X	X	--	/	/	/	/	*It is unknown how DWR determined a base flow estimate. There is no stream gage. **A large number of other water purveyors exist in the Nipomo Mesa area, but a source was not identified that records which are specifically in the Nipomo and Suey Creeks area.
	Invasive species	--	/	--	X	X	/	/	--	/	/	/	X	--	--	--	/	--	/	/	X	X	X	--	/	/	/	/	
Pismo Creek	Surface Water Quality - Temperature	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	/	--	
	Surface Water Quality - Nutrients and Dissolved Oxygen	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	/	--	
	Ocean Water Quality – Fecal coliform	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	/	--	
	Surface Flow Quantity	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	/	--	
	Groundwater Quantity	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	/	--	
	Fish Passage Barriers	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	/	--	
	Erosion and Sedimentation	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	/	--	
	Flood Management	--	/	--	X	--	/	/	--	/	/	/	--	--	--	--	--	--	/	--	/	X	--	--	/	/	x	--	
Santa Maria River	Lack of data on effects of cattle grazing	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	??
	Impaired surface water quality	/	--	--	/	/	/	/*	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	*The is a stream gage on the Santa Maria River itself but not other creeks encompasses in the area, i.e. Black Lake Canyon or Oso Flaco Creek
	Endangered or threatened species potential for incidental take.	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	
	Lack of data on plant and wildlife species.	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	
	Erosion	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	
	Flooding	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	
	Balancing land use practices with conservation goals	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	/	/	/	--	--	/	/	/	/	
	Changes to flows, flow channels and sediment transport	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	/	/	/	--	--	/	/	/	/	
	Invasive riparian plant species	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	/	/	/	--	--	/	/	/	/	
	Sediment accretion	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	
	DDT and dieldrin	/	--	--	/	/	/	/	/	/	/	/	X	--	--	--	/	--	/	--	/	/	--	--	/	/	/	/	
San Luis Obispo Creek	Riparian Vegetation / Buffer Quality (Lack of riparian canopy)	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Surface Water Nutrients and Dissolved Oxygen	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Surface Water Temperature	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Surface Water Pathogens	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Surface Water Treated Effluent	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Surface Water Priority Organics	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Surface Water Quantity	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Instream Fish Habitat	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Fish Passage Barriers	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Streambank Stability (Erosion)	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Upland Erosion and Sedimentation	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Exotic Plant Species	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Non-Native Fish – Carp and Chinook Salmon	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Debris Accumulation	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
	Flooding	/	--	--	--	--	--	/	--	/	/	/	/	--	--	--	--	--	--	--	/	X	--	--	/	/	/	/	
Of the 10 watersheds in the South County sub-region, what number of watersheds have a data gap linked to a primary issue		--	0	0	6	4	9	21	3	16	7	9	14	0	0	2	0	0	5	1	7	7	0	1	13	24	24	7	
Summary Line					x	x	x	x	x	x	x	x			x			x	x	x	x		x	x	x	x	x	

KEY	
X	Complete Data Gap
X	Data Gap is related to Issue
/	Partial Data Gap
	Indicates a link between data item and critical issue
-	Complete Data
/	Partial Data Gap
X	complete data gap

High	Base flow, tributary health, suface water quality
Medium	Peak flow, vegetation cover, stream habitat inventory, climate change impacts
Low	All others

Individual snapshot priority key		
low		<10
mediu		10-19
high		20+

Appendix O.

Salt and Nutrient Report (e-only)

Appendix O-1

Salt and Nutrient Management Planning Priorities Tech Memo

SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS
UTILITIES DIVISION

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MEMORANDUM

June 24, 2014

TO: San Luis Obispo County IRWM Region Interested Stakeholders

FROM: Cherie Du, E.I.T., Water Resources Student Intern

VIA: Courtney Howard, P.E., Senior Water Resources Engineer
Carolyn Berg, P.E., Water Resources Staff Engineer

SUBJECT: **Identification & Prioritization of Groundwater Basins Requiring a Salt and Nutrient Management Plan (SNMP) and SNMP Development Resources**

Purpose

The Department of Water Resources (DWR) awarded Proposition 84 Integrated Regional Water Management (IRWM) Round 2 Planning Grant funding towards a series of focused planning studies developed to improve the IRWM Plan. A portion of this funding was awarded to the San Luis Obispo County Flood Control and Water Conservation District (District) to identify and prioritize groundwater basins within San Luis Obispo County (county or region) which require Salt and Nutrient Management Plans (SNMP).

There is a general lack of awareness of the Regional Water Quality Control Board's (RWQCB) Recycled Water Policy (RWP) which requires the creation and implementation of an SNMP. The degree of organized basin management in the region varies widely. Because of a lack of resources, smaller, unorganized basins may be at a disadvantage for complying with the RWP.

The purpose of this memorandum is to identify the basin study areas where SNMPs are needed, relevant stakeholders who may be appropriate to lead the development of each, and regional priorities. The memo consolidates information to assist stakeholders with developing and implementing the SNMPs. Finally, the memo offers an opportunity to raise awareness of SNMP requirements and to gain feedback from stakeholders.

Grant-Funded Study Scope

The following three grant funded tasks guide development of this study:

Task 5.1.1 Identify Study Areas for Salt and Nutrient Management Planning

Meet with the RWQCB and local stakeholders to identify appropriate study areas for SNMPs and the relevant stakeholders who may be appropriate to lead the development of each SNMP. Relevant Stakeholders are those whose activities and operations may impact salt and nutrient management in the study area, such as agricultural interests, wastewater dischargers, recycled water producers, private well owners, environmental groups, regulatory staff, and the general public.

Task 5.1.2 Develop and Distribute Salt and Nutrient Management Planning Information Packages

Compile example SNMP and related scopes of work, regulatory information or other information to inform stakeholders in each study area about SNMP requirements and how to develop one.

Task 5.1.3 Prioritize the Development of Salt and Nutrient Management Plan per Study Area

Develop criteria for prioritizing the development of SNMPs and prioritizing the study areas.

Task 5.1.1 Identify Study Areas for Salt and Nutrient Management Planning

In February 2009, the State Water Resources Control Board (SWRCB) adopted the RWP. Its intent is to promote sustainable water supplies (e.g. recycled water, conservation, stormwater recharge/use), establish basin goals, streamline recycled water permitting, and develop SNMPs. The SWRCB has a stated requirement to implement an SNMP for every DWR Bulletin 118 basin by 2014 to monitor and protect groundwater resources. However, in practice, the RWQCBs are *focusing on high priority basins* for SNMP development, rather than on *every* DWR Bulletin 118 basin.

Per Bulletin 118, there are 63 DWR-defined groundwater basins and sub-basins in the Central Coast Hydrologic Region. There are 22 basins and sub-basins within the county that require SNMPs. Because there are many basins, most of which do not have an actively engaged stakeholder group, resources may be better focused after establishing and prioritizing study areas (i.e. groups of basins).

Study areas offer an opportunity to bring stakeholders together and initiate collaboration on basin monitoring and management plans. Study areas were created based on DWR Bulletin 118 boundaries, geographic proximity, land use, hydrology, and existing management efforts underway. Further described in Task 5.1.3, Priority 1 basins and basins shared by neighboring counties have their own study areas. The following study areas are proposed for stakeholder consideration (**Table 1, Figure 1**).

Table 1. Groundwater Basins and Proposed Study Areas

Study Area	DWR Bulletin 118 Basin #	Basin Name
Paso Robles	3.4.06	Paso Robles
Los Osos Valley	3.8	Los Osos Valley
Santa Maria Valley	3.12	Santa Maria Valley
San Luis Obispo Valley	3.9	San Luis Obispo Valley
Area 1[1]	3.33 3.34	San Carpoforo Valley Arroyo De La Cruz Valley

[1] Pico Creek is not a listed Bulletin 118 Basin, therefore is not listed in Area 1.

Area 2	3.35	San Simeon Valley
	3.36	Santa Rosa Valley
Area 3	3.37	Villa Valley
	3.38	Cayucos Valley
	3.39	Old Valley
	3.40	Toro Valley
	3.41	Morro Valley
	3.42	Chorro Valley
Area 4	3.43	Rinconada Valley
	3.44	Pozo Valley
Area 5	3.45	Huasna Valley
Area 6	3.19	Carrizo Plain
	3.46	Rafael Valley
	3.47	Big Spring Area
Area 7	3.13	Cuyama Valley
Area 8	3.5	Cholame Valley

Exhibit A provides an initial list of stakeholders in each study area. Stakeholders are those whose activities and operations may impact salt and nutrient management in the study area, such as agricultural interests, wastewater dischargers, recycled water producers, private well owners, environmental groups, regulatory staff, and the general public.

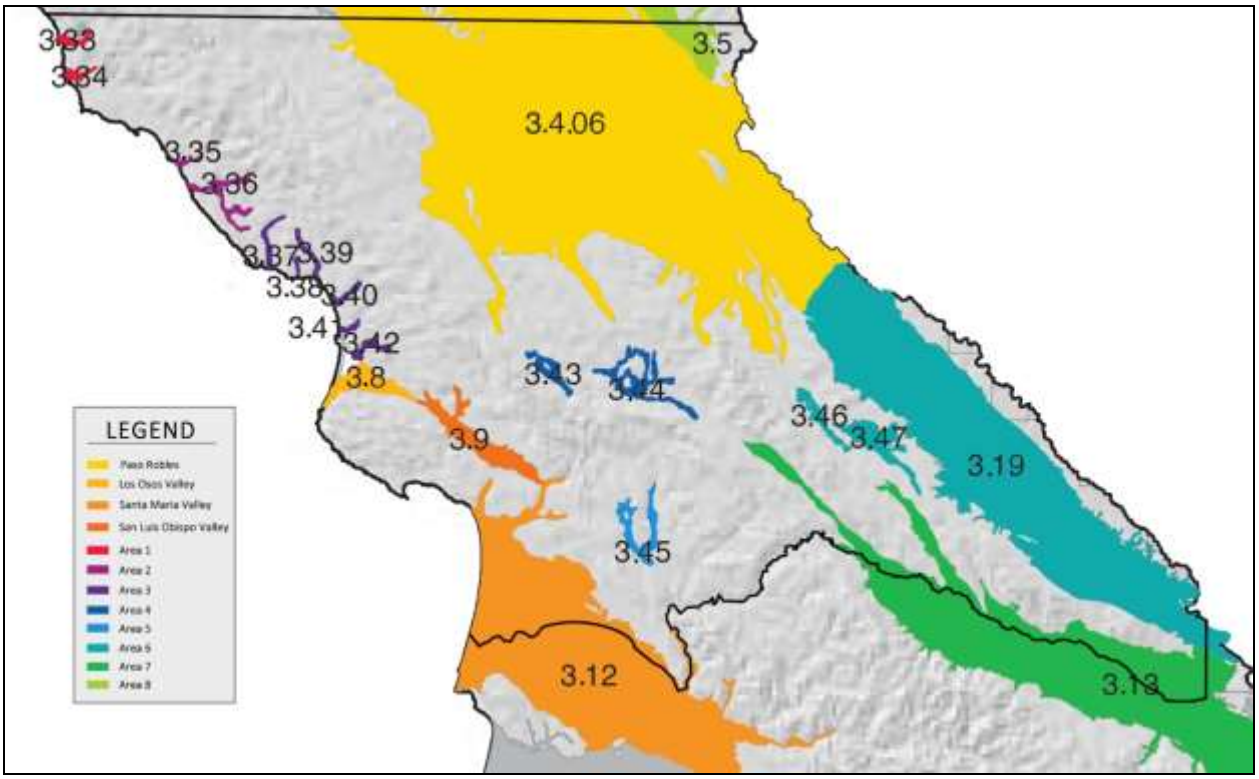

Figure 1. Map of Bulletin 118-Groundwater Basins within Proposed SNMP Study Areas

Task 5.1.2 Develop and Distribute Salt and Nutrient Management Planning Information Packages

This task will be completed upon completion of stakeholder outreach process and consensus on study areas. The RWP requires SNMPs to contain the following main components:

- Salt and nutrient source identification, assimilative capacity and loading estimate
- Fate and transport analysis of salt and nutrients
- Basin-wide monitoring plan (including an appropriate network of monitoring locations)
- Annual monitoring of Constituents of Emerging Concern (CEC)
- Water recycling and stormwater recharge/use goals and objectives
- Implementation measures to manage salt and nutrient loading on sustainable basis
- Anti-degradation analysis demonstrating projects collectively satisfy RWP

The Central Coast RWQCB published an SNMP Elements paper (**Exhibit B**), which provides additional detail on each of the components listed above.

Task 5.1.3 Prioritize the Development of Salt and Nutrient Management Plan (SNMP) per Study Area

Consistent with the SWRCB's Discussion Draft Groundwater Work Plan Concept Paper, the objective of this study is to provide information to assist stakeholders with addressing the groundwater challenges that have the greatest potential to impact beneficial uses, focus limited resources on the current critical groundwater basins, and facilitate more efficient local and regional groundwater management. Prioritizing basins may be valuable in helping to evaluate, focus, and align limited resources for effective groundwater management. This will help the region to move towards reliable and sustainable groundwater resources in an efficient and strategic way.

To guide local basin/study area prioritization for SNMP development, District Staff considered existing program and management priority lists and processes including:

Statewide:

1. Groundwater Ambient Monitoring and Assessment Program (GAMA)
2. California Statewide Groundwater Elevation Monitoring (CASGEM)

Local/ Regional:

3. County of San Luis Obispo Resource Management System Level of Severity (LOS) III designations
4. Groundwater Basin Adjudications
5. Groundwater Management Plans

Each of these are briefly described below as "Priority Factors".

Priority Factor 1 - Groundwater Ambient Monitoring and Assessment Program (GAMA) Prioritization

This factor relates to basins deemed priority for water quality monitoring by the SWRCB. The GAMA priority basin project monitors groundwater in high use basins for a dozen chemicals, including contaminants of emerging concern, at very low detection limits. There are three GAMA priority basins in the county:

- Salinas Valley (Paso Robles Area)
- Santa Maria Valley
- Cuyama Valley

Priority Factor 2 - California Statewide Groundwater Elevation Monitoring (CASGEM) Prioritization

This factor relates to basins deemed priority for groundwater level monitoring by the State Department of Water Resources.

The DWR website offers the following description of CASGEM: On November 4, 2009 the State Legislature amended the Water Code with SBx7-6, which mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. To achieve that goal, the amendment requires collaboration between local monitoring entities and DWR to collect groundwater elevation data. Collection and evaluation of such data on a statewide scale is an important fundamental step toward improving management of California's groundwater resources.

In accordance with this amendment to the Water Code, DWR developed the CASGEM program. The intent of the CASGEM program is to establish a permanent, locally-managed program of regular and systematic monitoring in all of California's alluvial groundwater basins. The CASGEM program will rely and build on the many, established local long-term groundwater monitoring and management programs. DWR's role is to coordinate the CASGEM program, to work cooperatively with local entities, and to maintain the collected elevation data in a readily and widely available public database. DWR will also continue its current network of groundwater monitoring as funding allows.

Senate Bill 7x6 requires, as part of the CASGEM program, DWR to prioritize groundwater basins to help identify, evaluate, and determine the need for additional groundwater level monitoring by considering available data listed below:

1. The population overlying the basin
2. The rate of current and projected growth of the population overlying the basin
3. The number of public supply wells that draw from the basin
4. The irrigated acreage overlying the basin
5. The degree to which persons overlying the basin rely on groundwater as primary source of water
6. Any documented impacts on the groundwater within the basin, including overdraft, subsidence, saline intrusion, and other water quality degradation
7. Any other information determined to be relevant by DWR

The CASGEM Basin prioritization has not been finalized yet; however, draft results[2] have been published. The following are the proposed priority basins within San Luis Obispo County:

- High Priority: Los Osos Valley and Salinas Valley (Paso Robles Area)
- Medium Priority: San Luis Obispo Valley

The remaining groundwater basins within the county are proposed to be low or very low priority.

Priority Factor 3 - Level of Severity (LOS) III Designation

This factor relates to groundwater resources supplies deemed to be deficient compared to demand.

[2] Dan McManus, DWR Supervising Engineering Geologist, reminds regional stakeholders CASGEM Basin Prioritization will begin with a series of five workshops throughout the state starting in January, 2014. During the workshops DWR will be presenting the statewide and regional prioritization information and discussing the process used to develop the prioritization. These workshops may require changes to the prioritization.

Per the County of San Luis Obispo's Land Use and Circulation Element, the Resource Management System (RMS), assists county decision-makers in anticipating increasing needs for resources created by growth. The RMS assesses capacities of existing critical resources, and the timing for providing or upgrading resource delivery facilities. The RMS is intended to support timely addition to a resource, or growth rate adjustment where a resource shortage would require longer to correct than remaining capacity allows.

The RMS uses three levels of alert (called levels of severity, LOS) to identify potential and progressively more immediate resource deficiencies. LOS I applies to a less severe/ less immediate resource deficiency, while LOS III applies to the most severe/ immediate resource deficiency. LOS III is designated when projected water demand equals or exceeds the estimated dependable supply. A basin is recommended LOS III by County Planning and Building Department Staff based on information provided by various water agencies. Typically upon direction from the Board of Supervisors, a Resource Capacity Study (RCS) will be developed and reviewed at public hearings by the Planning Commission and the Board of Supervisors. A basin can be certified LOS III by the Board of Supervisors upon completion of a RCS.

The following groundwater basins' water supply were either **certified** (C) or recommended (R) as a LOS III designation in the 2010 – 2012 RMS Biennial Summary Report.

- **Los Osos** (C)
- **Paso Robles** (C)
- **Nipomo Mesa (NMWCA)** (C)
- Cuyama Valley (R)
- Morro-Chorro (R)
- North Coast (R)

Priority Factor 4 - Adjudication

This factor relates to basins that have undergone legal proceedings and are under the jurisdiction of the court system.

Another form of groundwater management in California is through a court-led adjudication. In basins where a lawsuit is brought to adjudicate the basin, the groundwater rights of all the overliers and appropriators are determined by the court. This study considers basins that have been or are currently being adjudicated as an additional factor in the final basin prioritization. The following basins are adjudicated basins:

- Santa Maria Valley
- Los Osos Valley

Basins that have that have legal proceedings underway or completed already have a high level of focus on them. And inherent to the process, they have highly engaged decision makers and stakeholders.

Priority Factor 5 – Groundwater Management Plan

This factor relates to stakeholder-led groundwater management planning and implementation.

In 1992, the State Legislature provided an opportunity for more formal groundwater management with the passage of AB 3030 (Water Code § 10750 et seq.), which can include development of groundwater management plans. Typically groundwater management plans include components such as:

- Basin management objectives
- Monitoring and management of groundwater levels, quality, etc.
- Monitoring protocols, especially those relating to the basin management objectives
- Collaborative and cooperative stakeholder approach
- Basin mapping as defined by Bulletin 118

This management activity aligns well with SNMP development and implementation. Basins which have a groundwater management plan under development or adopted likely have engaged stakeholders and a foundation of data and basin objectives developed.

Priority Factor 6 – Basins with known Seawater Intrusion and/or Nitrate Contamination

This factor relates to the target constituents an SNMP seeks to address – salt and nitrates.

The following basins are known to have seawater intrusion and/or nitrate issues:

- Morro and Chorro Valley
- Los Osos Valley
- North Coast (Santa Rosa and San Simeon Valley)

Prioritization of Basins/ Study Areas for SNMP Implementation

The Priority Factors were used for the SLO County regional SNMP prioritization methodology to result in a prioritization that considers basins already deemed critical or priority under other local or state processes. Basins considered priorities under these various Priority Factors already have:

- Groundwater basin analysis underway
- Identified and engaged stakeholders
- The focus of decision-makers, whether locally or at a state level
- Better potential for funding assistance through grant programs for basin management efforts

The proposed regional prioritization approach raises a basin's priority for SNMP development in direct proportion to the number of existing priorities already set on that basin. Using check marks, **Table 2** shows basins within the county where Priority Factors apply. The proposed local prioritization is then based on number of check marks:

- Priority 1 (3-6 check marks) – Priority 1 basins have a good foundation for beginning the process of developing an SNMP and/or are considered a critical basin for beginning basin management. These basins are considered the highest priority for developing and implementing an SNMP.
- Priority 2 (1-2 check marks) – Priority 2 basins meet fewer of the criteria for prioritization, and moving forward on an SNMP would depend on changing conditions over time, stakeholder engagement and RWQCB input.
- Priority 3 (0 check marks) – Priority 3 basins did not meet any prioritization criteria and include all other Bulletin 118 basins. A basic groundwater or watershed monitoring program for these basins would facilitate the development of an SNMP in the future should doing so become a priority.

Table 2. Groundwater Basins with Existing Priorities and Management Activities

Basin Name	GAMA Priority Basin	CASGEM Priority Basin	LOS III		Adjudication	Groundwater Management Plan	Nitrate and/or Seawater
			Certified	Recommended			
Cuyama Valley	✔			✔			
Los Osos Valley		✔ (high)	✔		✔	✔	✔
Morro and Chorro Valley				✔			✔
North Coast (Santa Rosa and San Simeon Valley)				✔			✔
Salinas Valley (Paso Robles Area)	✔	✔ (high)	✔		(Lawsuits filed)	✔	
San Luis Obispo Valley		✔ (med.)					
Santa Maria Valley (Nipomo-Mesa)	✔		✔		✔		

A list and map of the different basins and their priorities are shown below (**Table 3 and Figure 2**).

Table 3. Basin Prioritization for SNMP Implementation

Priority	DWR Basin #	Basin Name
1	3.4.06	Salinas Valley (Paso Robles Area)
	3.8	Los Osos Valley
	3.12	Santa Maria Valley
2	3.9	San Luis Obispo Valley
	3.13	Cuyama Valley
	3.35 & 3.36	North Coast (San Simeon Valley and Santa Rosa)
	3.41 & 3.42	Morro-Chorro (Morro and Chorro Valley)
3	3.5	Cholame Valley
	3.19	Carrizo Plain
	3.33	San Carpoforo Valley
	3.34	Arroyo De La Cruz
	3.37	Villa Valley
	3.38	Cayucos Valley
	3.39	Old Valley
	3.40	Toro Valley
	3.43	Rinconada Valley
	3.44	Pozo Valley
	3.45	Huasna Valley
	3.46	Rafael Valley
	3.47	Big Spring

The prioritized basins relate to the Study Areas proposed and named in Task 5.1.3 as follows:

- Priority 1 (high) for SNMP Development – Study Areas: Salinas Valley (Paso Robles Area), Los Osos Valley, Santa Maria Valley
- Priority 2 (medium) for SNMP Development - Study Areas: San Luis Obispo Valley, 2, 3, 7
- Priority 3 (low) for SNMP Development - Study Areas 1, 4, 5, 6, 8

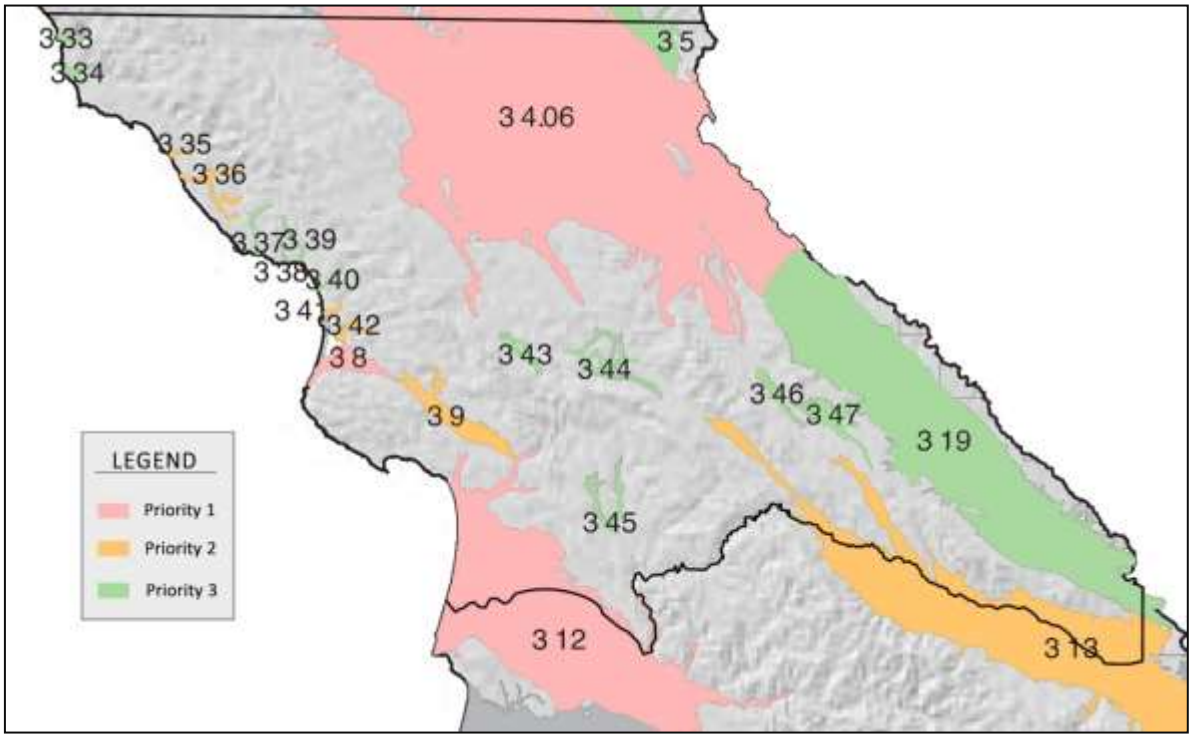

Figure 2. Map of Prioritized Basins

Next Steps

SNMP development and implementation offers local benefits and opportunities such as:

- Local control of proposed strategies, objectives and goals
- Relative source identification
- Leveraging other programs and projects
- Streamlined permitting (e.g. landscape irrigation general permit)
- Access to future funding (e.g. implementation of projects identified within adopted SNMPs)

However, the RWQCB noted challenges to SNMP development such as stakeholder engagement, lack of data or resources to develop data and/or an assimilative capacity analysis or reluctance and uncertainty on conducting CEQA. Despite these challenges, stakeholders in the Salinas Valley (Paso Robles Area), Los Osos Valley and Santa Maria Valley basins have initiated SNMP development. The resulting SNMPs can serve as templates for other basins and local study areas.

As resources become available or a motivated stakeholder base emerges, SNMPs or similar management planning can be pursued in the medium to low priority basins. Many of the low priority

basins lack an urban driver to initiate the SNMP process. However there are initial steps stakeholders can take to implement collaborative groundwater management. These could include:

- Forming a watershed or groundwater basin stakeholder group
- Initiating or expanding a cooperative monitoring network
- Collecting and reporting additional well level information and data
- Collecting and reporting water quality information and data

This could come about in the form of a stakeholder-driven groundwater management or watershed management planning structure. Such structures could help to find watershed based approaches and solutions to other requirements such as the Agricultural Order.

Overall, SNMPs will facilitate a collaborative and cooperative approach to local groundwater management. Local SNMPs will in-turn inform amendments to the Central Coast RWQCB Basin Plan.

Works Cited

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Attachments

Exhibit A – Initial List of Stakeholders by Study Area
Exhibit B – Information Packet including:

- RWQCB SNMP Plan Elements
- RWQCB Presentation
- Santa Maria Phase I SNMP
- Paso Robles SNMP
- Additional Information

Exhibit A - SNMP Study Areas and Initial List of Corresponding Stakeholders

Study Area	Stakeholders
NORTH COAST SUBREGION	
Area 1 *San Carpoforo Valley, Arroyo De La Cruz Valley*	District & County of San Luis Obispo San Simeon CSD Hearst Ranch State Parks U.S. Forest Service Overlying agriculture & overlying residential/ businesses on septic systems
Area 2 *San Simeon Valley, Santa Rosa Valley*	District & County of San Luis Obispo Cambria CSD Community of Harmony State Parks Overlying agriculture & overlying residential/ businesses on septic systems
Area 3 *Villa Valley, Cayucos Valley, Old Valley, Toro Valley, Morro Valley, Chorro Valley*	District & County of San Luis Obispo U.S. Forest Service County Service Area No. 10A California Men's Colony Cuesta College Camp San Luis Obispo County Operations Center/ Office of Education City of Morro Bay Overlying agriculture & overlying residential/ businesses on septic systems
Los Osos Valley	District & County of San Luis Obispo Los Osos CSD Overlying agriculture & overlying residential/ businesses on septic systems
SOUTH COUNTY SUBREGION	
Area 5 *Huasna Valley*	District & County of San Luis Obispo Twitchell Reservoir users Santa Maria Valley Water Conservation District Twitchell Management Authority Overlying agriculture & overlying residential/ businesses on septic systems
Area 7 *Cuyama Valley*	District & County of San Luis Obispo U.S. Forest Services Cuyama CSD Kern County Water Agency Santa Barbara County Water Agency Ventura County Department of Water Resources Overlying agriculture & overlying residential/ businesses on septic systems
San Luis Obispo Valley *(includes Edna Valley)*	District & County of San Luis Obispo City of San Luis Obispo Diablo Canyon Power Plant (PG&E) Port San Luis Harbor District Overlying agriculture & overlying residential/ businesses on septic systems
Santa Maria Valley	District & County of San Luis Obispo County of San Luis Obispo – CSA 1, Lopez Lake Park City of Arroyo Grande City of Guadalupe City of Pismo Beach

Study Area	Stakeholders
	Oceano CSD Nipomo CSD ConocoPhillips City of Santa Maria Santa Barbara County Water Agency U.S. Forest Services South San Luis Obispo County Sanitation District State Parks Casmalia CSD Overlying agriculture & overlying residential/ businesses on septic systems
NORTH COUNTY SUBREGION	
Area 4 *Riconada Valley, Pozo Valley*	District & County of San Luis Obispo U.S. Army Corps of Engineers U.S. Forest Service Bureau of Land Management U.S. Forest Services Overlying agriculture & overlying residential/ businesses on septic systems
Area 6 *Carrizo Plain, Rafael Valley, Big Spring Area*	District & County of San Luis Obispo Bureau of Land Management (Painted Rock) California Department of Fish and Wildlife California Valley Solar Ranch Project Community of California Valley Topaz Farms SunPower Overlying agriculture & overlying residential/ businesses on septic systems
Area 8 *Cholame Valley*	District & County of San Luis Obispo U.S. Geological Survey Central Coast Water Authority Small public water systems Overlying agriculture & overlying residential/ businesses on septic systems
Paso Robles	District & County of San Luis Obispo U.S. Forest Service City of Atascadero City of Paso Robles Templeton CSD San Miguel CSD Whitley Gardens U.S. Army - Camp Roberts Monterey County Parks Department Monterey County Water Resources Agency Heritage Ranch Oak Shores Overlying agriculture & overlying residential/ businesses on septic systems

EXHIBIT B – RWQCB Salt and Nutrient Management Plan Elements

Central Coast Regional Water Quality Control Board

Salt and Nutrient Management Plan Elements:

Paragraph 6.b.(3) of the Recycled Water Policy[1] states the following:

(3) Each salt and nutrient management plan shall include the following components:

(a) A basin/sub-basin wide monitoring plan that includes an appropriate network of monitoring locations. The scale of the basin/sub-basin monitoring plan is dependent upon the site-specific conditions and shall be adequate to provide a reasonable, cost-effective means of determining whether the concentrations of salt, nutrients, and other constituents of concern as identified in the salt and nutrient plans are consistent with applicable water quality objectives. Salts, nutrients, and the constituents identified in paragraph 6(b)(1)(f) shall be monitored. The frequency of monitoring shall be determined in the salt/nutrient management plan and approved by the Regional Water Board pursuant to paragraph 6(b)(2).

(i) The monitoring plan must be designed to determine water quality in the basin. The plan must focus on basin water quality near water supply wells and areas proximate to large water recycling projects, particularly groundwater recharge projects. Also, monitoring locations shall, where appropriate, target groundwater and surface waters where groundwater has connectivity with adjacent surface waters.

(ii) The preferred approach to monitoring plan development is to collect samples from existing wells if feasible as long as the existing wells are located appropriately to determine water quality throughout the most critical areas of the basin.

(iii) The monitoring plan shall identify those stakeholders responsible for conducting, compiling, and reporting the monitoring data. The data shall be reported to the Regional Water Board at least every three years.

(b) A provision for annual monitoring of Emerging Constituents/ Constituents of Emerging Concern (e.g., endocrine disrupters, personal care products or pharmaceuticals) (CECs) consistent with recommendations by CDPH and consistent with any actions by the State Water Board taken pursuant to paragraph 10(b) of this Policy.

[1] http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/docs/recycledwaterpolicy_approved.pdf

(c) Water recycling and stormwater recharge/use goals and objectives.

(d) Salt and nutrient source identification, basin/sub-basin assimilative capacity and loading estimates, together with fate and transport of salts and nutrients.

(e) Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.

(f) An antidegradation analysis demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.

The following is an expanded list of Central Coast Regional Water Quality Control Board recommended elements:

(Note: clarification/definitions provided at end of document for elements marked with an asterisk.)

- **Background**
  - Recycled water policy overview
  - Existing related plans and projects (IRWMs, GMPs – AB3030, etc.)
  - Regulatory setting (303(d) listings, TMDLs, WDRs, local controls/ordinances, etc.)
  - Stakeholder list, roles and responsibilities

- **Groundwater Basin Description/Environmental Setting**
  - Climate (existing and forecast, i.e. climate change)
  - Geology
  - Hydrogeology/hydrology
  - Landcover and landuse evaluation/mapping
  - Existing/background groundwater and surface water quality conditions (inclusive of all groundwater/aquifers; i.e. shallow groundwater and domestic well water quality)
  - Beneficial uses
  - Recharge area identification/mapping/ranking

- **Source Analysis**
  - *Conceptual model
  - Water Balance (existing and forecast)
  - Salt and nutrient balance (source identification and loading/concentration analysis; existing and forecast based on future growth)

- Fate and transport analysis (integrated surface water/groundwater modeling)
- Assimilative capacity analysis

- **Regional (basin/sub-basin) Monitoring Plan**
  - (see Recycled Water Policy paragraph 6.b.(3) for specifics)
  - *Quality Assurance Project Plan (QAPP)
  - Data management and reporting (GAMA GeoTracker)
  - Water balance monitoring (in addition to water quality monitoring)
  - Monitoring parameters/constituents
  - Salt and nutrient balance and source loading monitoring (documentation of loading [reduction] by source)
  - Constituents of Emerging Concern (CEC) monitoring
  - Trend analysis
  - Monitoring plan implementation schedule

- **Goals and Objectives**
  - Recommended Water Quality Objectives (WQO) and goals
  - Beneficial use protection
  - Institutional controls, general plan amendments, local ordinances, etc.
  - Landuse planning
  - Management Practices (MPs); to reduce salt and nutrient loading
  - Sustainable water balance plan
  - Load allocations
  - Load reduction goals
  - Water conservation goals
  - Water recycling goals
  - Storm water retention/recharge goals
  - Recharge area protection/restoration
  - Wellhead protection

- **Implementation**
  - *Performance measures
  - Implementation plan and schedule
  - *Adaptive Management Plan; tied to regional monitoring
  - Public outreach and education
  - Cost analysis
  - Funding opportunities
  - *Antidegradation Analysis
  - CEQA
  - Institutional agreements (between stakeholders for plan implementation)
  - Organizational structure or groups (technical advisory committees etc.)

Clarification/Definitions

Conceptual model: a simple two dimensional drawing of the groundwater basin identifying all groundwater zones/aquifers and showing salt/nutrient and water quantity inputs and outputs from known sources such as adjacent groundwater basins, recharge, point and non-point sources, water purveyors, etc.

Quality Assurance Project Plan (QAPP): A Quality Assurance Project Plan documents the planning, implementation, and assessment procedures for a particular project, as well as any specific quality assurance and quality control activities. See following EPA website for more information:

http://www.epa.gov/QUALITY/qapps.html

Performance measures: Indicators of results or measures of effectiveness that provide qualitative and/or quantitative information needed to measure the extent to which a project is achieving its intended outcomes, objectives or goals.

Performance Measures are metrics used to provide an analytical basis for decision making and to focus attention on what matters most. Performance Measures answer the question, 'How is an organization or project doing at the job of meeting its objectives or goals?' Examples could include number of facilities implementing salt/nutrient management plans or the reduction of salt/nutrient loading from individual facilities/entities.

Adaptive Management Plan: Adaptive Management (AM), also known as Adaptive Resource Management (ARM), is a decision process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals; increases scientific knowledge; and reduces tensions among stakeholders

Alternatively, adaptive management is a structured, iterative process of optimal decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring. In this way, decision making simultaneously maximizes one or more resource objectives and, either passively or actively, accrues information needed to improve future management. Adaptive management is often characterized as "learning by doing."

Typical steps in the process of Adaptive Management could include:

START: Clarify organization or project mission
STEP A: Design a conceptual model based on known conditions
STEP B: Develop a management plan: goals, objectives, and activities
STEP C: Develop a monitoring plan
STEP D: Implement management and monitoring plans
STEP E: Analyze data and communicate results
ITERATE: Use results to adapt and learn

Antidegradation Analysis: The State Water Board adopted Resolution No. 68-16 as a policy statement to implement the Legislature's intent that waters of the state shall be regulated to achieve the highest water quality consistent with the maximum benefit to the people of the state. An antidegradation analysis needs to be conducted demonstrating that the projects included within the plan will, collectively, satisfy the requirements of Resolution No. 68-16.

EXHIBIT B – RWQCB Presentation

Recycled Water Policy

Salt and Nutrient Management Plans

Central Coast Water Board

April 18, 2013 SLO ASCE Branch Luncheon Meeting

Matthew Keeling, P.E.

“Unprecedented Water Crisis”

- Bay-Delta ecosystem collapse
- Aging/failing levees
- Climate change
- Drought
- Groundwater overdraft
- Population growth

20x2020 Water Conservation Plan

In February 2008, Governor Schwarzenegger introduced a seven-part comprehensive plan for improving the Sacramento-San Joaquin Delta.

As part of this effort, the Governor directed state agencies to develop a plan to reduce statewide per capita urban water use by 20 percent by the year 2020.

Recycled Water Policy Intent

- Promote sustainable water supplies via:
  - Recycled water projects
  - Conservation
  - Stormwater recharge and reuse
- Establish goals
- Permit streamlining & consistency
- Salt & Nutrient Management Plans

Recycled Water Policy Goals

- Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (afy) by 2020 and by at least two million afy by 2030.
- Increase the use of stormwater over use in 2007 by at least 500,000 afy by 2020 and by at least one million afy by 2030.
- Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020.
- Included in these goals is the substitution of as much recycled water for potable water as possible by 2030.

Salt & Nutrient Mgt. Plans

- Comprehensive regional approach
- Consistent and site-specific plans for every groundwater basin/sub-basin
- Collaborative stakeholder driven and funded process
- Protect beneficial uses

SNMP Required Components

- Salt and nutrient source identification and loading estimates
- Fate and transport analysis
- Assimilative capacity analysis
- Water recycling and stormwater recharge/reuse goals and objectives
- Implementation measures
- Anti-degradation analysis (Resolution 68-16)
- Basin/sub-basin monitoring plan
  - Constituents of emerging concern monitoring

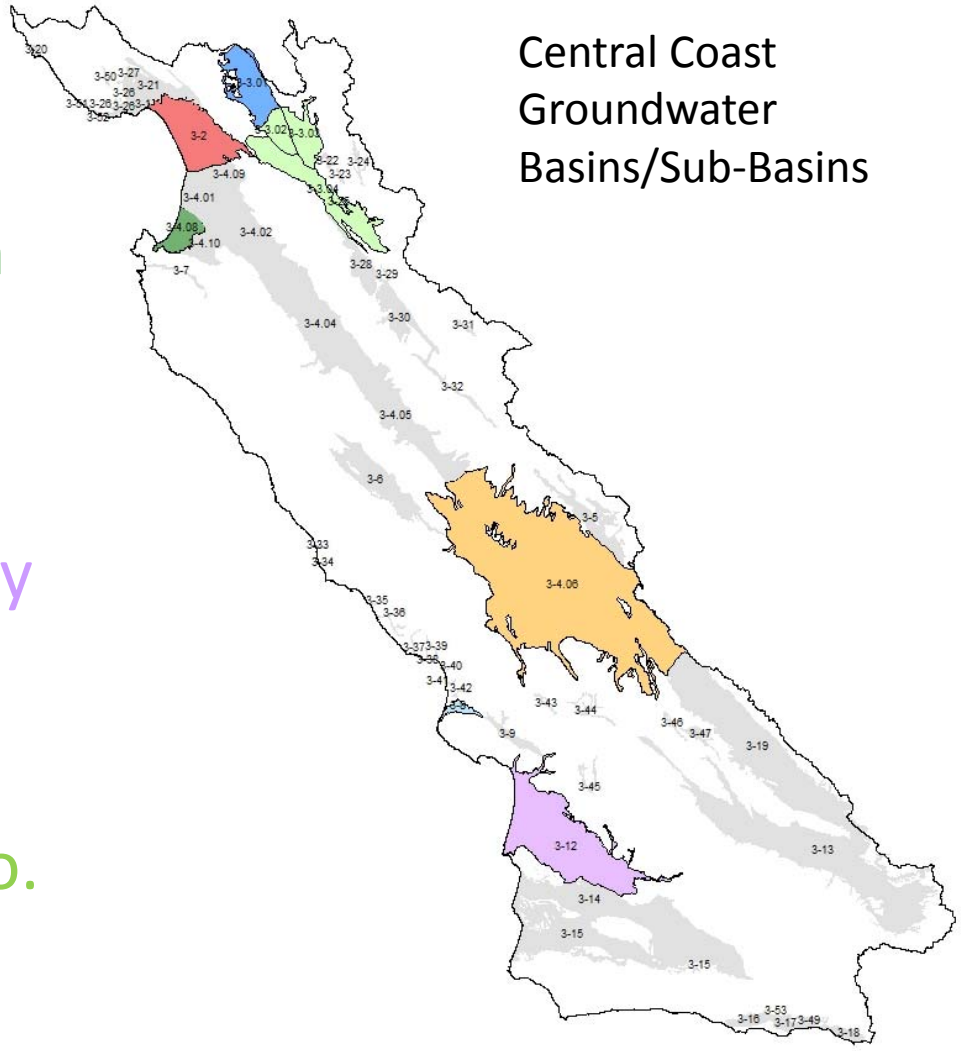
SNMP Schedule

- Policy adopted May 14, 2009
- Complete plans by May 14, 2014
- Substantial progress finding by Water Board:
  - Allows additional two years to complete plan
- Consider for adoption as implementation plans (Basin Plan Amendment) within one year of receiving proposed plans

R3 SNMP Projects/Areas

Active SNMP Efforts:

- Los Osos Valley (ISJ)
- Seaside Area Sub-Basin
- Pajaro Valley
- Paso Robles Area
- Santa Maria River Valley
  - San Luis Obispo County
  - Santa Barbara County
- Northern San Benito Co.
- Llagas Areas Sub-Basin



Central Coast Groundwater Basins/Sub-Basins

R3 Groundwater Basins/Sub-Basins

3-1 Soquel Valley
3-2 Pajaro Valley
3-3 Gilroy-Hollister Valley
- **3-3.01 Llagas Area**
- **3-3.02 Bolsa Area**
- **3-3.03 Hollister Area**
- 3-3.04 San Juan Bautista Area

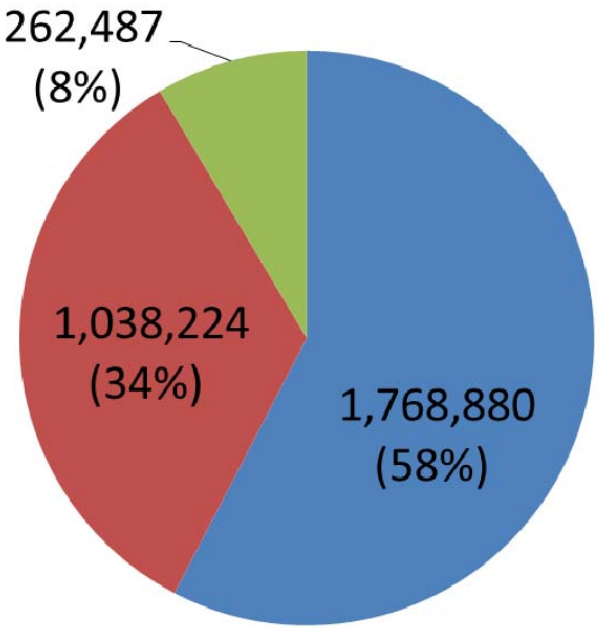
3-4 Salinas Valley
- **3-4.01 180/400 Foot Aquifer**
- **3-4.02 East Side Aquifer**
- **3-4.04 Forebay Aquifer**
- **3-4.05 Upper Valley Aquifer**
- **3-4.06 Paso Robles Area**
- **3-4.08 Seaside Area**
- **3-4.09 Langley Area**
- **3-4.10 Corral de Tierra Area**

3-5 Cholame Valley
3-6 Lockwood Valley
3-7 Carmel Valley
3-8 Los Osos Valley
3-9 San Luis Obispo Valley
3-12 Santa Maria River Valley
3-13 Cuyama Valley
3-14 San Antonio Creek Valley
3-15 Santa Ynez River Valley
3-16 Goleta
3-17 Santa Barbara
3-18 Carpinteria
3-19 Carrizo Plain*
3-20 Ano Nuevo Area*
3-21 Santa Cruz Purisima Formation
3-22 Santa Ana Valley*
3-23 Upper Santa Ana Valley*
3-24 Quien Sabe Valley*
3-25 Tres Pinos Valley
3-26 West Santa Cruz Terrace
3-27 Scotts Valley
3-28 San Benito River Valley
3-29 Dry Lake Valley*
3-30 Bitter Water Valley*
3-31 Hernandez Valley*
3-32 Peach Tree Valley*
3-33 San Carpoforo Valley*
3-34 Arroyo de la Cruz Valley*
3-35 San Simeon Valley
3-36 Santa Rosa Valley
3-37 Villa Valley*
3-38 Cayucos Valley*
3-39 Old Valley*
3-40 Toro Valley*
3-41 Morro Valley
3-42 Chorro Valley
3-43 Rinconada Valley*
3-44 Pozo Valley*
3-45 Huasna Valley*
3-46 Rafael Valley*
3-47 Big Spring Area*
3-49 Montecito
3-50 Felton Area
3-51 Majors Creek*
3-52 Needle Rock Point*
3-53 Foothill*

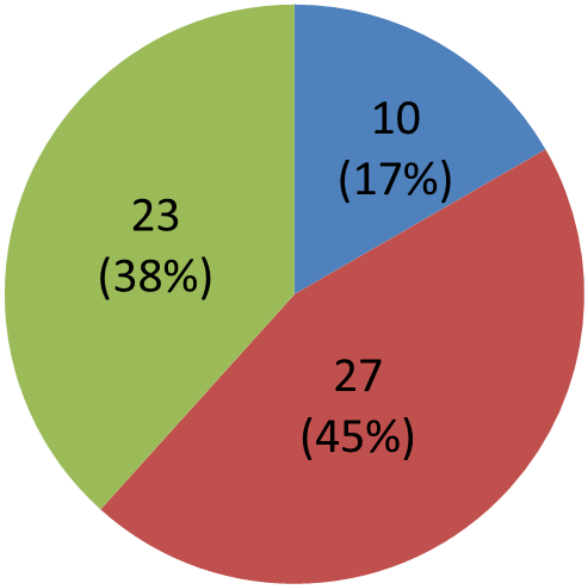
- GAMA Priority Basins/Sub-Basins in **bold/underline**
- Color (grouping) denotes SNMP currently underway
- Asterisk (*) denotes low risk/priority basins/sub-basins

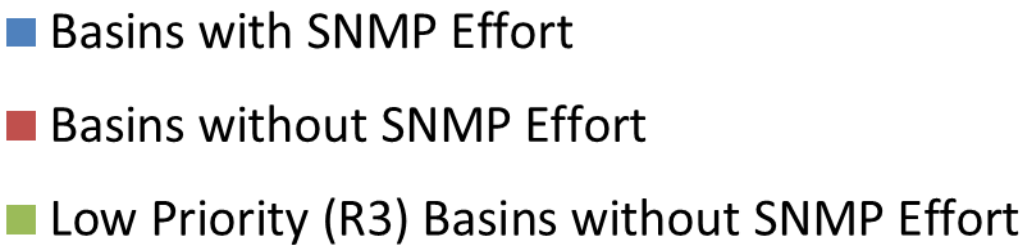
R3 Regional SNMP Coverage

By Acreage



By Number of Basins

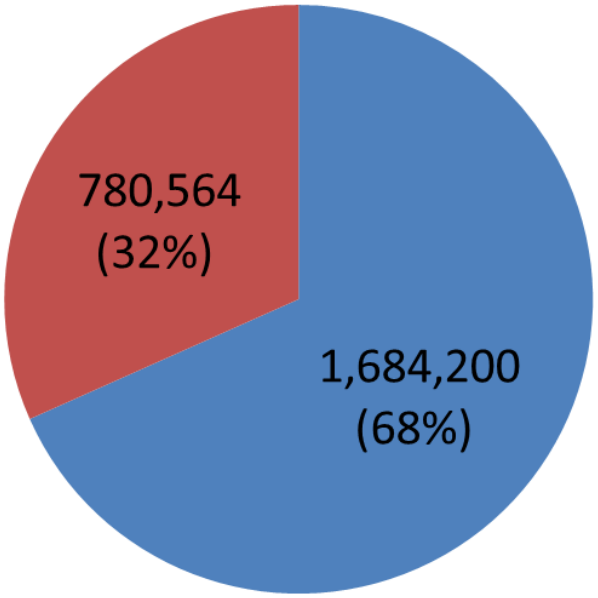




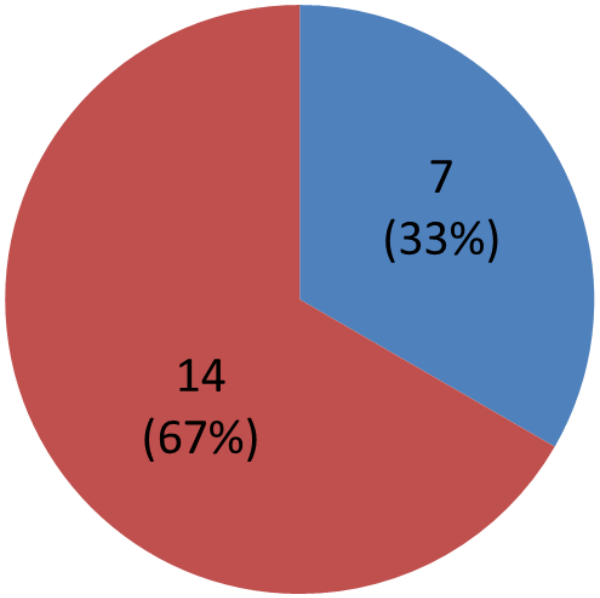
60 basins/sub-basins
3,069,591 acres

R3 GAMA Priority Basin SNMP Coverage

By Acreage



By Number of Basins

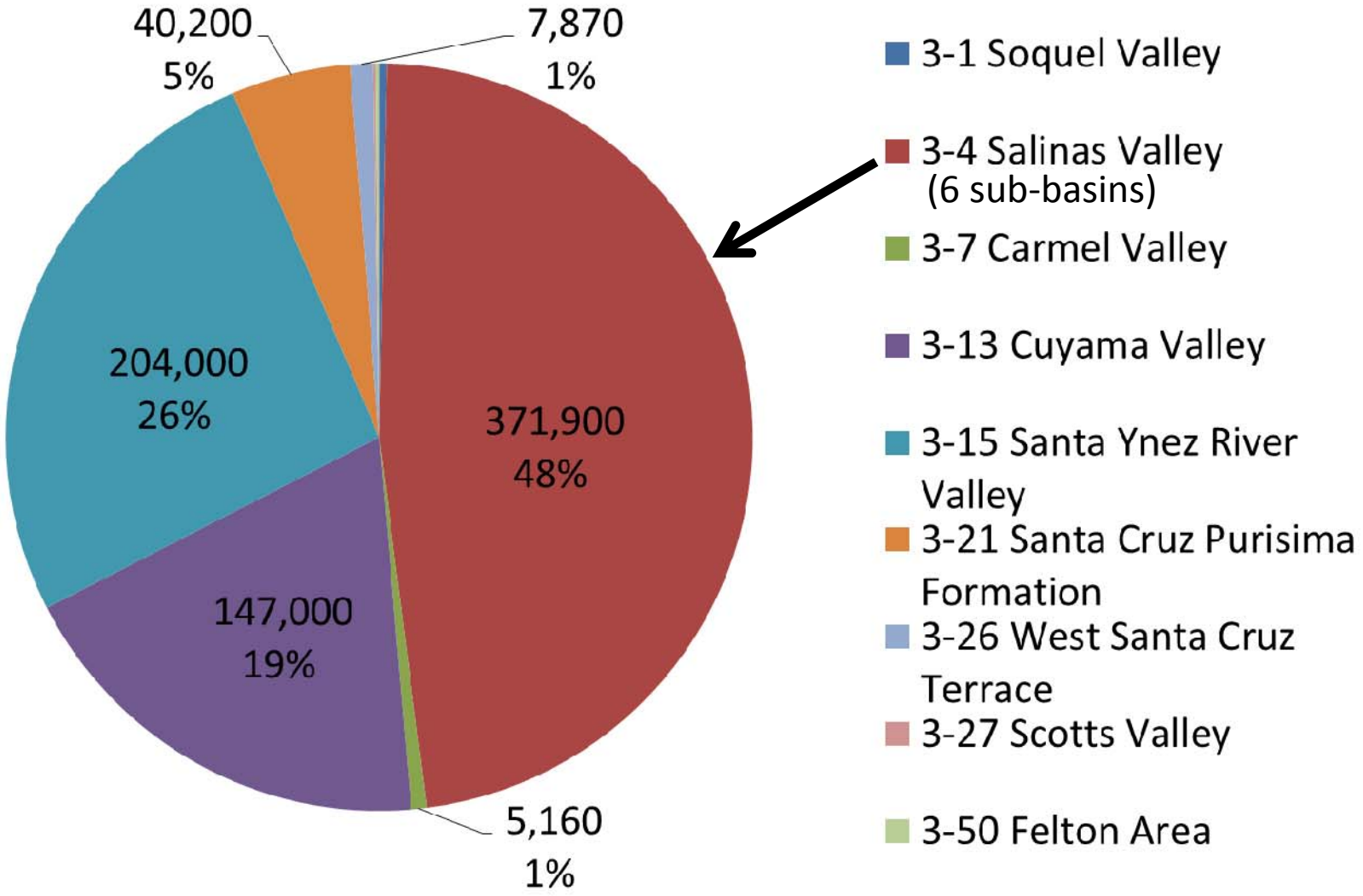


Priority Basins with SNMP Effort

Priority Basins without SNMP Effort

R3 GAMA **Priority** Basins w/o SNMP Effort

(by acre and percentage)



R3 Regional Challenges

- Funding
- Action lacking in high priority areas/basins
  - e.g. Salinas Valley, Cuyama Valley, Santa Ynez River Valley, etc.
- Agricultural landuse
  - Primary loading source in some areas
  - Stakeholder participation
- Assimilative Capacity Analysis
  - Water Quality Objectives
- CEQA – stakeholder uncertainty & reluctance
- Regional Groundwater Monitoring Database

Opportunities

- Local control of proposed strategies, objectives and goals
- Relative source identification
- Leveraging other programs & projects
- Streamlined permitting
- Future funding – implementation of projects identified within adopted plans

Streamlined Permitting

- Landscape Irrigation General Permit
  - Receiving water monitoring not required
  - Anti-degradation analysis not required
- Criteria
  - No unusual circumstances (i.e., low risk)
  - Compliance with applicable requirements
  - Agronomic rates – including fertilizer
  - Operations and Management Plan

Questions

Information Links

- Recycled Water Policy
  - http://www.swrcb.ca.gov/water_issues/programs/water_recycling_policy/index.shtml
- Statewide General Permit (Landscape Irrigation)
  - http://www.swrcb.ca.gov/water_issues/programs/water_recycling_policy/landscape_irrigation_general_permit.shtml
- Integrated Regional Water Management Plans
  - http://www.water.ca.gov/irwm/
- 20x2020 Water Conservation Plan
  - http://www.waterboards.ca.gov/water_issues/hot_topics/20x2020/index.shtml

Antidegradation Policy

Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

EXHIBIT B – Santa Maria Phase I SNMP

This is an example of approaching/starting an SNMP for the Santa Maria groundwater basin.

Task 5.4 Groundwater Basin Characterization for the Santa Maria Groundwater Basin

The purpose of this task is to support critical groundwater basin characterization activities in the Northern Cities and Nipomo Mesa Management Areas (NCMA and NMMA, respectively) of the Santa Maria Groundwater Basin (SMGB). The proposed groundwater basin characterization activities are intended to support development of a groundwater flow model and SNMP for the two management areas. The following tasks are necessary to characterize the geologic and hydrogeologic features of the NCMA and NMMA portions of the SMGB to provide a foundation for developing a groundwater model and a SNMP for the SMGB. Additional detailed study will be required to complete the SNMP and will be conducted in the latter phases of the project.

Task 5.4.1 Project Administration

Develop a steering committee, which will include representatives from each of the participating agencies. The steering committee will provide input to the District for the SMGB Characterization project management activities (RFP development, consultant selection, deliverable review, etc.). Prepare monthly progress reports and invoices and other administrative tasks necessary to comply with the quarterly reporting requirements of the IRWM Planning Grant agreement. This task includes project related project management activities and at least three meetings.

Task 5.4.2 Data Analysis

Review previous completed geologic and hydrogeologic studies and develop a database of available resources. Database should include previously completed: technical reports; monitoring plans; monitoring reports; response plans; legal documents; well data; topographic data; aerial imagery; etc. Quality assurance/quality control (QA/QC) of the data will be conducted for any duplicate records and general checking of the data from various sources for uniform formats, parameters, and spatial information. Review the compiled data and information and identify any significant data gaps related to the development of a groundwater model and SNMP. Prioritize the data gaps to assist in developing the specific scope of work for the subsequent tasks. A technical memorandum discussing the data compilation/ data gaps will be prepared.

Task 5.4.3 Groundwater Basin Characterization

- Evaluate the existing network of monitoring wells within the NCMA and NMMA and identify wells for the installation of water level and/or temperature and electro conductivity transducers. Budget is based on installing pressure/temperature/conductivity probes in four monitoring wells.
- Evaluate available hydrogeologic information and select 8 locations to develop geologic cross-sections. Develop geologic cross-sections using bore hole lithologic logs and other available information.
- Coordinate with the steering committee to select locations that will be most beneficial to the development of the groundwater model and the SNMP.
- Evaluate the existing network of pumping and monitoring wells and select 8-10 representative locations to perform well testing.
- Utilize well testing results to determine aquifer and transmissivity characteristics. Investigate and quantify infiltration into the groundwater basin from surface water bodies within the NCMA and NMMA. Specific areas of interest include, but are not limited to: Arroyo Grande Creek; Los Berros Creek; Meadow Creek; Nipomo Creek.
- Efforts will include compilation, evaluation, and tabulation of all previous field investigations and reports related to quantifying surface water infiltration, compilation and review soils data, surficial geology, streamflow data, and groundwater levels along each stream to qualitatively evaluate surface water infiltration potential. Investigate areas within the basin that would be suitable for supplemental groundwater recharge.
- Evaluate different recharge mechanisms including: stormwater detention ponds; percolation ponds; injection wells; etc.
- Review existing technical reports and analyze aquifer characteristics for offshore aquifers and evaluate the potential for seawater intrusion.
- A technical memorandum discussing the groundwater basin characteristics will be prepared.

Task 5.4.4 Climate Change

Complete the DWR Vulnerability Assessment Checklist related to climate change. Coordinate with agencies and stakeholders in Santa Barbara County portion SMGB to address consistency, as well as information on climate change conditions provided in existing local climate change reports.

Task 5.4.5 Goals and Objectives

- Develop materials for a public workshop and hold public workshop to review the results of the Groundwater Basin Characterization
- Identify preferred goals and objectives for the groundwater model and SNMP for the SMGB. Incorporate comments received during workshop and the public comment period into the final Groundwater Basin Characterization Technical Memoranda.

Task 5.4.6 IRWM Plan Coordination/ Final Report

Integrate results of Groundwater Basin Characterization report into the IRWM Plan. A final report will be prepared that compiles the information and major findings of the technical memos and information from Tasks 5.4.1 – 5.4.5. A Draft of the report will be presented for review to the District, Steering Committee, and basin stakeholders. Comments provided will be addressed in written responses and/or included as appropriate modifications to the final report. Final report will be provided to the District as well as the computer files for the groundwater basin characterization database.

Task 5.4 Deliverables:

- **Steering Committee meeting minutes from each meeting**
- **Data Compilation/ Data Gaps Technical Memorandum**
- **Groundwater Basin Characterization Technical Memorandum**
- **Completed DWR Vulnerability Assessment Checklist**
- **Summary notes from goals and objectives workshop**
- **Final Report and computer files for groundwater basin characterization database**

EXHIBIT B – Paso Robles SNMP

This is an example of an SNMP in progress for the Paso Robles groundwater basin.

Task 5.2 SNMP for the Paso Robles Groundwater Basin

This focused planning study will be led by the City of Paso Robles to develop a complete SNMP for the Paso Robles Groundwater Basin to serve as model for the SLO Region and develop salt and nutrient management planning recommendations based on lessons learned and feedback from the RWQCB.

The following "Agencies" have agreed to collaborate on the development of a Salt and Nutrient Management Plan for the Paso Robles Groundwater Basin that meets all Policy requirements: County of San Luis Obispo, City of Atascadero, Templeton Community Services District, City of Paso Robles, San Miguel Community Services District, Camp Roberts (California National Guard); and Heritage Ranch Community Services District.

Task 5.2.1 Facilitate a Collaborative Process

As many as four (4) face-to-face primary stakeholder meetings (in coordination with the established Paso Robles Groundwater Blue Ribbon Steering Committee meetings) will be held to collect data and coordinate review of deliverables, and will coincide with key data collection and review of major deliverables. Establish a stakeholder contact list and invite RWQCB staff and public to all coordination meetings. If applicable, online webinar format may be used to engage additional stakeholders.

Task 5.2.2 Establish Basin Characteristics

This work is to establish basin characteristics that will guide the Plan's length and specificity. The basin characteristics will be derived from the existing studies and data, especially the *Paso Robles Groundwater Basin Management Plan*. The basin description will consist of the collection and organization of data to quantitatively characterize the Basin hydrology, hydrogeology, climate, land use, water quality, and water use and identify the water quality objectives for the Basin from the Central Coast Basin Plan. It will also include the development of an associated Geographic Information Systems (GIS) database in which the collected data will be organized in a variety of layers. This information will be used to develop Section 2 of the SNMP.

Task 5.2.3 Identify Existing and Foreseeable Salt and Nutrient Sources

Identify recommended salinity and nutrient parameters to be addressed within the SNMP, focusing on identifying constituents of concern relative to attainment of groundwater basin objectives and surface water quality standards. Identify known point sources, non-point sources and locations, and estimate constituent mass loading from these sources, quantify in terms of volume, concentration and/or mass loads based on available information. Identify other future water sources and places of use. Where such information is not already available in existing studies, information will be gathered from agencies and organizations with property interests in the Paso Robles Groundwater Basin and associated sub-basins to determine salt, nutrient, irrigation practice, and chemical loading characteristics of maintenance or management activities. Utilize salinity and nutrient source load assessment tool to perform loading analyses. A technical memorandum summarizing this assessment and loading estimates will be prepared.

Task 5.2.4 Salt and Nutrient Evaluation

This task will include:

- Description of the hydrologic and hydrogeologic conceptual model of the basin.
- Preparation of a written conceptual model of the groundwater basin, describing the physical, hydraulic and water quality conditions of the groundwater basin (and its sub-areas) and summarizing water supplies and demands for the basin, including projections of future use.
- Summary and analysis of the fate and transport studies prepared for Templeton Community Services District, City of Paso Robles, and City of Atascadero.
- A mass balance model of TDS, and possibly other water quality parameters, would account for basin storage volumes and ambient concentrations, along with volumetric rates of groundwater inflow and outflow in conjunction with source and sink concentrations.
- Estimates of future concentrations of salts and nutrients, with/without future recycled water use, either for the entire basin or groundwater sub-areas.
- Estimate of the water balance of the basin, using the existing numeric groundwater model of the basin.
- Estimate of salt and nutrient balances for existing and planned land and water use, using sources of salt and nutrient loading and the water balance from the previous sub-tasks.
- Assimilative Capacity: Compare water quality at representative locations within the basin to the limits set in the Basin Plan.
- Create a GIS-based salt and nutrient loading model to account for these factors and will develop a loading estimate for an average year.
- Anti-degradation Analysis: If the previous subtasks indicate the potential to degrade the water quality of the Paso Robles Groundwater Basin, an antidegradation analysis to satisfy the requirements of State Water Resources Control Board's Resolution 68-16 may be required. This sub-task is not part of this scope of work, but may be recommended as a follow-up task after the SNMP is completed.

Task 5.2.5 Implementation Measures, Goals and Objectives

- Identify the preferred goals and objectives of the Primary and Secondary Stakeholders that the SNMP will aim to achieve. This process will identify specific goals and objectives for water recycling, and for recharge of stormwater and imported sources of water into the groundwater basin, and will correlate with the basin management objectives for the groundwater basin.
- Identify available salinity and nutrient management strategies for the groundwater basin (such as, wastewater salinity & nutrient source control, public education, source load reduction, etc.).
- Screen the preliminary list of alternative management strategies, and assess the load reduction and/or water quality improvement potential for the more viable strategies using the assessment modeling tools developed. Identify scenarios recommended for use in assessing alternate management strategies, and identify load conditions to be assessed in each scenario.
- Evaluate and compare the most feasible basin management strategies on the basis of factors such as: anticipated water quality improvements; local water supply development potential. Select a preferred strategy for implementation using stakeholder feedback.
- Coordinate with Primary Stakeholders to identify recommended Basin Plan modifications that are consistent with implementing the preferred salinity and nutrient management strategies. Assess how the recommended strategy conforms to California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements. Specifically, this assessment will identify if implementation of the recommended strategy will be subject to review under CEQA or NEPA and what level of environmental documentation will be required. If the recommended strategy would be subject to review, work will be completed to identify the appropriate governing body (lead agency) and conduct an initial, high-level environmental assessment to define the scope and strategy for any necessary CEQA/NEPA compliance.
- A technical memorandum will be prepared to summarize the implementation of measures, goals and objectives for SNMP

Task 5.2.6 Monitoring Program and Database

Evaluate existing water quality monitoring programs in the Basin to assess whether they collectively achieve the objectives of the Plan. If necessary, modifications to those existing monitoring programs or augmentation of the overall network of programs will be recommended to achieve the SNMP's objectives. Additionally, depending on the availability of wells for the monitoring program, additional monitoring locations may be recommended. The goal of this analysis will be identify an optimal groundwater monitoring network and program that will meet all basin monitoring needs, including those of the new SNMP, CASGEM, and other regional and local monitoring requirements.

Evaluation of monitoring programs will include

- Identification of the specific water quality constituents monitored, the schedule/frequency of monitoring, staff positions responsible for monitoring, database management methods used, a description of data dissemination and reporting procedures, and whether they also provide water quality data at sufficient spatial and temporal scales to facilitate future assessments of salt and nutrient source loading and future trends analyses.
- Evaluation of existing state and federal water quality databases (e.g., Geotracker GAMA).
- Adoption of an appropriate database management method in the SNMP to ensure that the organization and storage of future monitoring data is compatible with State databases.
- Identification of the stakeholders responsible for conducting the groundwater sampling, submitting the samples to qualified analytical laboratories for testing, organizing the subsequent laboratory test results into the groundwater quality database, and reporting the water quality results to Water Board staff at least once every three years.
- A technical memorandum summarizing the evaluation of the monitoring programs will be prepared and will include a cost estimate to implement the recommended monitoring program.

Task 5.2.7 Prepare Salt and Nutrient Management Plan

Prepare the Paso Robles Groundwater Basin SNMP, writing a document that summarizes the analyses and conclusions of the work conducted under Task 5.2. The document will be an executive summary style, with references to the appendices which will consist of the memoranda developed in Tasks 5.2.1 through 5.2.6. This task may include a SNMP audit to establish the framework and schedule for periodically updating the Plan and identifying the responsible agencies for implementing periodic effectiveness assessments using the performance measures. Submit the draft document to the stakeholders for review and comment, revise the draft document as needed and finalize the SNMP.

Task 5.2.8 Quality Assurance and Quality Control

The QA/QC program will address two key components of the program: Technical Quality and Stakeholder Satisfaction. This task includes an independent technical review by the members of the consultant's firm that are experienced in groundwater

management but are not directly involved in the development of this SNMP. This internal review will ensure the SNMP meets the expectations of the stakeholders and meets the requirements of the Recycled Water Policy.

Task 5.2.9 Project Management

This task includes general project management and coordination during the initial project start up, procurement of any necessary sub-contractors, kickoff meeting, and preparation of the SNMP. Project management activities will continue throughout the duration of the project. Consultant procurement and selection, associated stakeholder coordination meetings and the development and execution of the Reimbursement Agreement.

Task 5.2 Deliverables:

- **Stakeholder list; Meeting agendas**
- **Technical Memorandum summarizing results of analyses and providing content for Section 2 of SNMP.**
- **Salt and nutrient source location and load maps**
- **Technical Memorandum summarizing assessment and loading estimates**
- **Technical Memorandum summarizing the Implementation of Measures, Goals and Objectives for SNMP**
- **Final SNMP**

EXHIBIT B – Additional Information

Department of Water Resources on Salt and Nutrient Management Plans
http://www.waterboards.ca.gov/losangeles/water_issues/programs/salt_and_nutrient_management/index.shtml

How to Develop an SNMP
http://www.waterboards.ca.gov/losangeles/water_issues/programs/salt_and_nutrient_management/Stakeholder_Outreach/Regional%20Water%20Board%20SNMP%20Assistance%20Document.PDF

Implementing an SNMP
http://www.waterboards.ca.gov/centralcoast/water_issues/programs/nutrient_mgmt/docs/sn_plan_do_the_work.pdf

Recycled Water Policy
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2013/rs2013_0003_a.pdf

Policy Intent
http://www.waterboards.ca.gov/rwqcb3/water_issues/programs/nutrient_mgmt/docs/policy_intent.pdf

Example of a Completed SNMP – Santa Rosa
http://ci.santa-rosa.ca.us/departments/utilities/groundwater/SNMP/Pages/default.aspx

Appendix O-2 thru O-4

PLACEHOLDER SHEET FOR WHEN STUDIES ARE COMPLETED

O-2 Paso Robles Basin Salt and Nutrient Management Plan

O-3 Paso Robles Basin Groundwater Model Update

O-4 Santa Maria Basin Characterization

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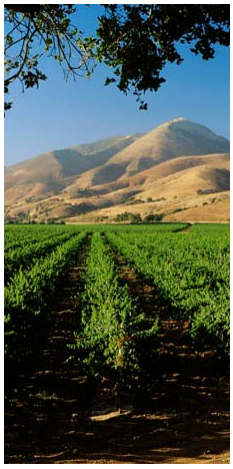
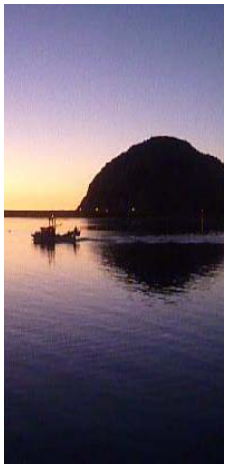
Appendix P.

Recycled Water Study

San Luis Obispo County
Regional Recycled Water Strategic Plan





Participating Agencies:

City of Arroyo Grande
City of Grover Beach
City of Morro Bay
City of Pismo Beach
County of San Luis Obispo
Nipomo Community Services District
Oceano Community Services District
South San Luis Obispo County Sanitation District
Templeton Community Services District

DRAFT
June 19, 2014

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EXECUTIVE SUMMARY

Introduction

The County of San Luis Obispo (County) is investigating opportunities for the use of treated wastewater (recycled water) across the County as part of the San Luis Obispo Region Integrated Regional Water Management (IRWM) Plan (SLO IRWMP). The Regional Recycled Water Strategic Plan (RRWSP) is one component of an update to the SLO IRWMP, and is funded by a Round 2 IRWM Regional Planning Grant from the California Department of Water Resources (DWR).

Increased interest in recycled water use has been expressed across the County through individual agency water and wastewater planning efforts, and through County-wide efforts such as SLO IRWMP and the County Master Water Plan. The interest in recycled water is driven by several factors, particularly the acknowledgement of limited existing water sources and the desire to maximize the benefit of local resources. Historically, the primary obstacles to recycled water implementation were cost competiveness with existing water supplies and some future water supplies, as well as, in some cases, public or customer acceptance of reuse. Some of these obstacles still exist and are explored in the RRWSP.

RRWSP Purpose, Objectives, and Approach

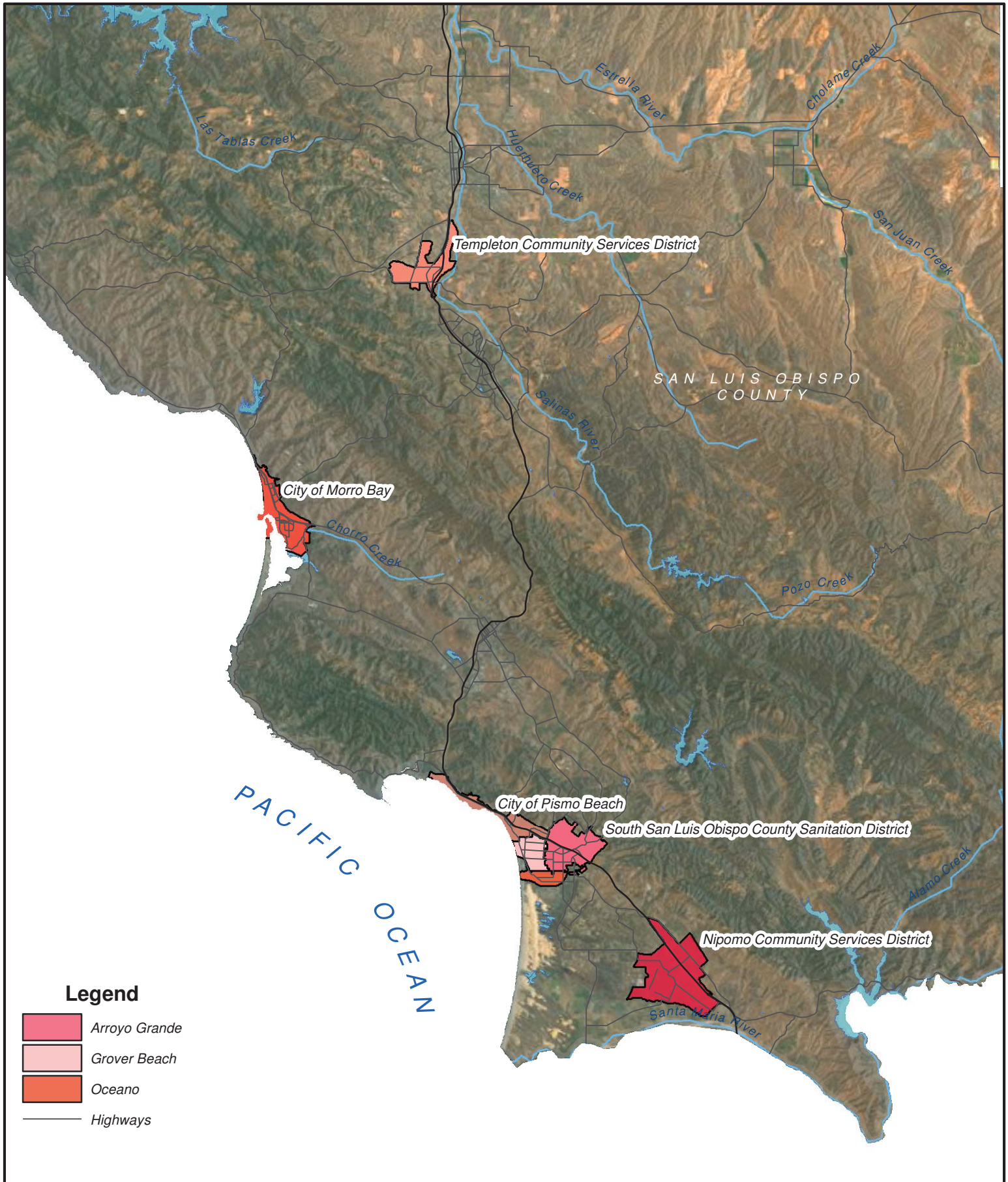
The purpose of the RRWSP is to identify and prioritize potentially viable next steps in successfully implementing water reclamation across the County in a safe and cost-effective manner. The RRWSP objectives are to:

- Update previously defined recycled water projects, identify new projects, and identify opportunities for inter-regional cooperation.
- Apply a similar cost and benefit basis to all projects to identify higher regional priorities.
- Advance existing recycled water planning efforts for each study area based on the progress and needs of each area.
- Define the critical next steps for individual agencies and regional entities to move priority projects forward.
- Identify one or more projects for the final round of Proposition 84 implementation grant funding, which is scheduled for 2015.

The RRWSP's approach builds upon the technical information developed by each agency, including treatment plant upgrades, market assessments, and project descriptions. This work also updated relevant information for previously identified projects, and identified potential modifications to those projects to lower cost while maintaining potential benefits. The RRWSP identifies high-priority projects based on costs and benefits, and defines critical next steps for each project. The RRWSP also addresses policy, regulatory, permitting, legal, and funding / financing considerations for different types of recycled water projects.

The RRWSP covers region wide recycled water opportunities, and has focused evaluations within four study areas (refer to the figure on the following page):

1. Morro Bay
2. Nipomo (Nipomo Community Services District (CSD))
3. Northern Cities (Arroyo Grande, Grover Beach, Pismo Beach, Oceano CSD, and South San Luis Obispo County Sanitation District (SSLOCSD))
4. Templeton (Templeton CSD)



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RRWSP Study Areas

San Luis Obispo County
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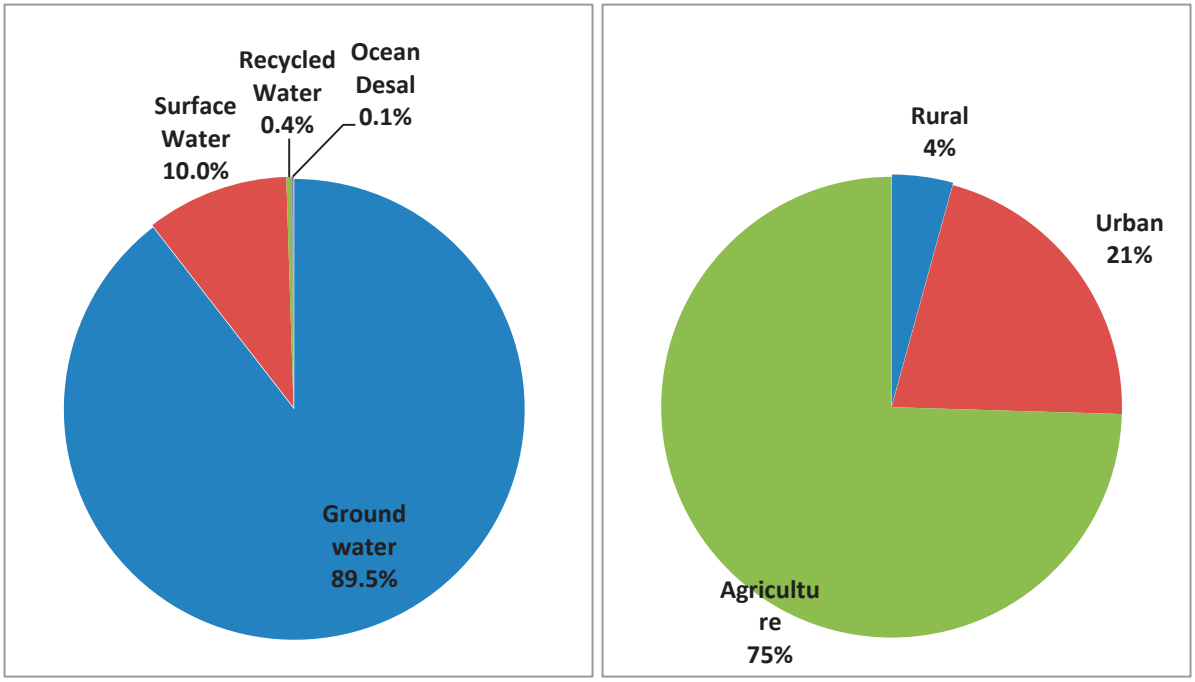
Regional Overview

The County's water supplies consist of groundwater, local and imported surface water, recycled water, and ocean desalination. The specific water supply portfolio for each water purveyor varies according to its location and previous investments in water supply infrastructure. For example, many purveyors are entirely dependent on groundwater, while a limited number use only groundwater to meet peak season demand. As reflected in the following figure, most water purveyors have a heavy reliance on groundwater.

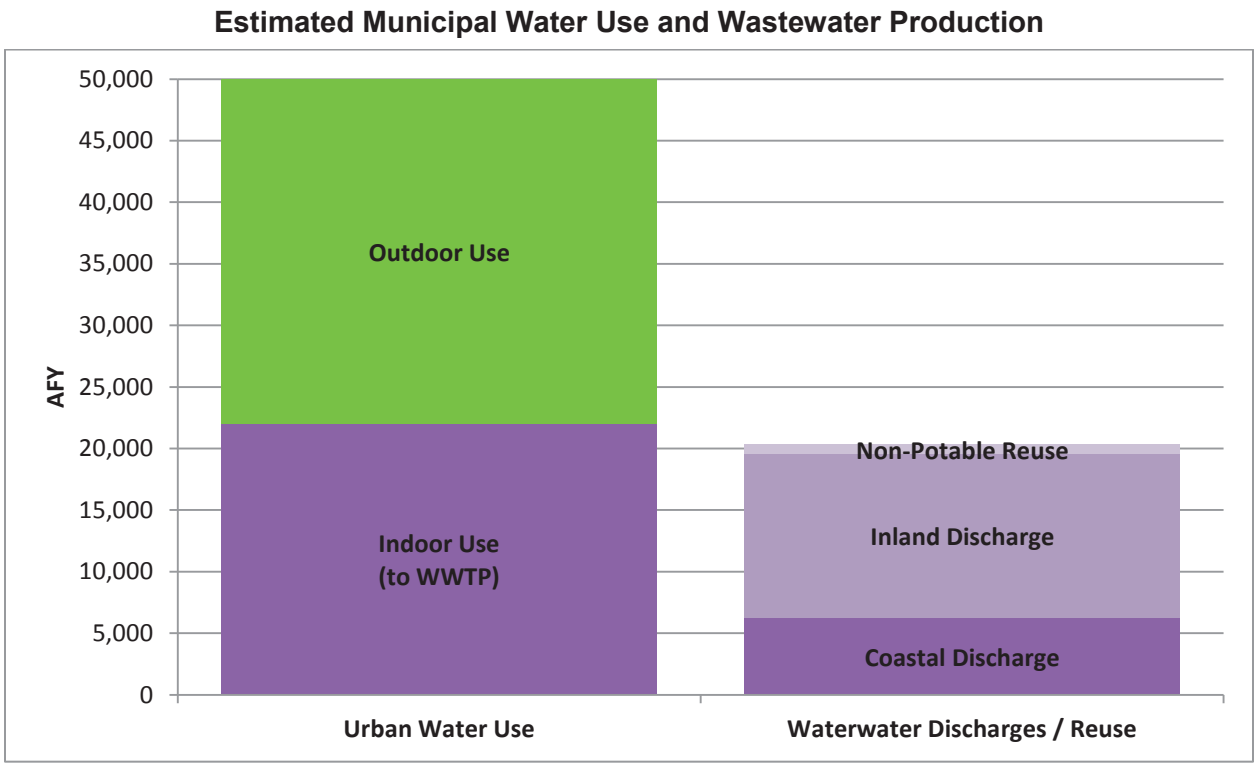
County Water Supply Portfolio & Types of Water Use



Source: San Luis Obispo County IRWM Region Public Draft (June 2014), Section D. Water Supply, Demand, and Water Budget

In general, there are limited untapped groundwater supplies for municipal drinking water use. As a result, many purveyors have invested in surface water supplies over the past decade, such as the State Water Project and Nacimiento Water Project. These new surface supplies have eased the stress on many groundwater basins. In addition, some historical supplies may be reduced in the future – whether from unsustainable pumping of groundwater, groundwater quality issues, or reductions in surface water availability. Climate change also has the potential to reduce the County's water supplies. These conditions, among others, have spurred interest in recycled water, particularly in locations where treated wastewater is discharged to the ocean and no associated water supply benefit is realized.

Urban water use accounts for approximately 21% of total water use across the County, which equates to approximately 50,000 acre-feet per year (afy). As shown in the following figure, approximately half of this volume is used outdoors and the other half is used indoors. All the indoor urban water use is conveyed to municipal wastewater treatment plants (WWTPs) and has the potential for reuse. After accounting for water losses and reuse within the WWTPs, approximately 20,000 afy (or roughly 10% of total water use across the County) has the potential for reuse. Finding the highest and best beneficial reuse for this volume of water is the focus of the RRWSP.



Source: San Luis Obispo County IRWM Region Public Draft (June 2014), Section D. Water Supply, Demand, and Water Budget

Recycled Water Background

Currently there are six operational non-potable reuse (NPR) projects across the region primarily consisting of golf course irrigation with disinfected secondary recycled water from treatment plants serving planned residential communities. The City of San Luis Obispo operates the only recycled water distribution system in the region, serving primarily City parks for landscape irrigation. Also, the County Department of Public Works is currently constructing a recycled water treatment and distribution system for the community of Los Osos, which will be operational in 2016. In total, approximately 810 afy of effluent is currently reused across the region by the following existing non-potable reuse projects:

- Atascadero (300 afy to Chalk Mountain Golf Course)
- California Men's Colony (200 afy to Dairy Creek Golf Course)
- Nipomo CSD, Blacklake WWTP (50 afy to Blacklake Golf Course)
- Rural Water Company WWTP (50 afy to Cypress Ridge Golf Course)
- City of San Luis Obispo (160 afy to nearby golf courses, schools, and commercial establishments; in addition to a minimum of 1,800 afy to San Luis Obispo Creek for streamflow augmentation)
- Woodlands MWC WWTP (50 afy to Monarch Dunes Golf Course)

In addition, approximately 790 afy of discharges are counted toward groundwater rights:

- Nipomo CSD Southland WWTP (640 afy percolated to Nipomo Mesa groundwater)
- Templeton CSD Meadowbrook WWTP (150 afy infiltrated for Salinas River underflow)

Unplanned or incidental reuse occurs in the County via discharge of disinfected secondary effluent to percolation ponds from WWTPs without an ocean outfall. The ponds discharge to the

underlying groundwater or an adjacent river and may eventually be used for potable or non-potable use, such as agriculture.

Unlike inland discharges, effluent discharge via ocean outfalls has no existing water supply benefit. Therefore, reuse of effluent from WWTPs with ocean outfalls would provide the largest water supply benefit. Approximately 6,200 afy of effluent is currently discharged to the ocean and the volume will rise as growth occurs in these areas. These discharges offer the highest opportunity for water supply benefit through reuse since the effluent does not provide any water supply benefit at this time. The following table summarizes effluent discharges and reuse across the region and the following figure shows the locations of each of these WWTPs.

Summary of Existing Effluent Discharges

Agency / WWTP	Existing Effluent		Existing Reuse	Inland Discharge	Ocean / Coastal Discharge
North County Sub-Region					
City of Atascadero	1.0 mgd	1,100 afy	300 afy	800 afy	--
Heritage Ranch CSD	0.2 mgd	230 afy	--	230 afy	--
City of Paso Robles	3.0 mgd	3,300 afy	--	3,300 afy	--
San Miguel CSD	0.1 mgd	130 afy	--	130 afy	--
TCSD Meadowbrook WWTP[1]	0.15 mgd	170 afy	--	170 afy[2]	--
North Coast Sub-Region					
California Men's Colony	1.2 mgd	1,340 afy	200 afy[3]	1,140 afy[3]	--
Cambria CSD	0.5 mgd	540 afy	--[4]	--	540 afy
Cayucos CSD	0.25 mgd	275 afy	--	--	275 afy
Los Osos WWTP[5]	1.2 mgd	1,340 afy	--	1,340 afy	--
Morro Bay	0.87 mgd	975 afy	--	--	975 afy
San Simeon CSD	0.07 mgd	80 afy	--[6]	--	80 afy
South County Sub-Region					
Avila Beach CSD	0.05 mgd	50 afy	--	--	50 afy
NCSD Blacklake WWTP	0.05 mgd	50 afy	50 afy	--	--
NCSD Southland WWTF	0.6 mgd	640 afy	--	640 afy[7]	--
Pismo Beach	1.1 mgd	1,230 afy	--	--	1,230 afy
Rural Water Company	0.05 mgd	50 afy	50 afy	--	--
City of San Luis Obispo[8]	5.1 mgd	5,700 afy	160 afy	5,540 afy[8]	--
San Miguelito MWC	0.15 mgd	170 afy	--	--	170 afy
SSLOCSD WWTP	2.6 mgd	2,910 afy	--	--	2,910 afy
Woodland MWC	0.05 mgd	50 afy	50 afy	--	--
Total	**18.3 mgd**	**20,330 afy**	**810 afy**	**13,290 afy**	**6,230 afy**

Notes:

1. Templeton CSD is considering diverting existing sewer flows that go to the Paso Robles WWTP (approximately 0.22 mgd) and conveying the flow for treatment at the TCSD Meadowbrook WWTP.
2. Templeton CSD retrieves the percolated water at downstream wells.
3. Must maintain a minimum discharge of 0.75 cfs (0.5 mgd; 540 afy) to Chorro Creek.
4. Percolated effluent serves as a barrier to slow the seaward migration of subterranean fresh water.
5. Currently under construction and start of operations planned for 2016.
6. Trucking of recycled water for irrigation started in 2014.
7. Percolated water is accounted for in the Nipomo Mesa Management Area groundwater balance.
8. Must maintain a minimum discharge of 2.5 cfs (1.6 mgd; 1,800 afy) to San Luis Obispo Creek.

Municipal Wastewater Treatment Plants within San Luis Obispo County

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Common Types of Reuse

Common types of water reuse can be divided into the following categories (based on USEPA 2012 Guidelines for Water Reuse):

- Urban Reuse
  - Unrestricted: The use of recycled water for non-potable applications in municipal settings where public access is not restricted
  - Restricted: The use of recycled water for non-potable applications in municipal settings where public access is controlled or restricted by physical or institutional barriers, such as fencing, advisory signage, or temporal access restriction
- Agricultural Reuse
  - Food Crops: The use of recycled water to irrigate food crops intended for human consumption
  - Processed Food Crops and Non-food Crops: The use of recycled water to irrigate crops that are either processed before human consumption or not consumed by humans
- Impoundments
  - Unrestricted: The use of recycled water in an impoundment in which no limitations are imposed on body-contact water recreation activities
  - Restricted: The use of recycled water in an impoundment where body contact is restricted, such as a landscape feature
- Environmental Reuse
  - The use of recycled water to create, enhance, sustain, or augment water bodies, including wetlands, aquatic habitats, or stream flow
- Industrial Reuse
  - The use of recycled water in industrial applications and facilities, power production, and extraction of fossil fuels
- Potable Reuse
  - Indirect Potable Reuse: Augmentation of a drinking water source (surface or groundwater) with recycled water followed by an environmental buffer and, for surface water only, normal drinking water treatment
  - Direct Potable Reuse: The introduction of recycled water (with or without retention in an engineered storage buffer) directly into a water treatment plant, either collocated or remote from the advanced wastewater treatment system

All of the types of reuse listed above are examined in the RRWSP with the exception of:

- Restricted Impoundments: Restricted impoundments are common recycled water storage methods for golf courses and agricultural fields but are not an end use. Use of recycled water for unrestricted impoundments is not considered in the RRWSP.
- Direct Potable Reuse: This option has recently emerged as a viable recycled water alternative across the United States, but several years of study and development of regulations await before a feasible project could be conceived in the County.

Opportunities, Constraints, and Recommendations by Study Area

This section presents the recycled water evaluation conducted for each of the study areas and summarizes opportunities across the region.

City of Morro Bay

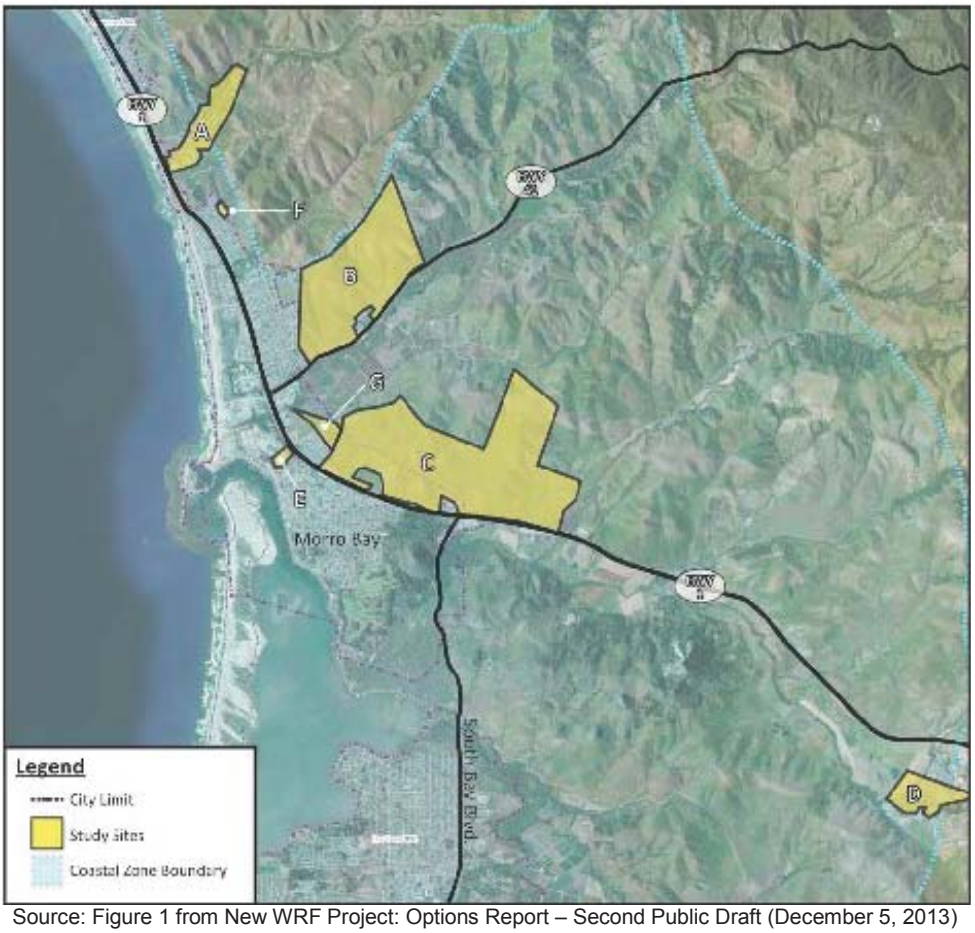
The City of Morro Bay is currently conducting a planning effort to define and site a new water reclamation facility (WRF). One key goal of the new facility is to produce tertiary effluent for reuse. As of February 2014, The City Council is scheduled to decide on a site in August 2014 and plans to have the new WRF online by February 2019.

There are a range of recycled water opportunities in and around the city, including landscape irrigation, agricultural irrigation, and groundwater recharge / streamflow augmentation. The city wants to maximize reuse from the new WRF. However, implementation of each type of potential reuse is subject to constraints, and feasible recycled water options are ultimately dependent on the site selected for the new WRF.

Next Steps

- Decide on a location for the new water reclamation facility.
- Pursue reuse opportunities specific to the WRF location.
- Incorporate recycled water planning into salt and nutrient management planning.

New WRF Sites Evaluated by Morro Bay



Source: Figure 1 from New WRF Project: Options Report – Second Public Draft (December 5, 2013)

Nipomo CSD

NCSD has two WWTPs (Southland WWTF and Blacklake WWTP) and both currently maximize reuse. Blacklake WWTP effluent is reused for irrigation at Blacklake Golf Course. Southland WWTF is percolated into the underlying groundwater basin, and these flows are included in the Nipomo Mesa Management Area (NMMA) water balance. Reuse of Southland WWTF effluent for landscape irrigation in strategic locations, such as offsetting pumping in groundwater depressions, could provide benefits to NCSD but would not necessarily provide new water. Also, Southland WWTF would need a tertiary treatment upgrade or an equivalent soil aquifer treatment and pumping system.

Potential landscape irrigation, agricultural irrigation, and groundwater recharge projects from Southland WWTF were explored in the RRWSP. However, the projects were not cost effective ($10,000+/af) primarily because NCSD would only receive a 10% water supply benefit for every unit of recycled water use since percolated Southland WWTF effluent is already part of the NMMA water balance. (The water balance assumes 10% of percolated water is lost during transport to the groundwater table and reuse of the effluent for irrigation would avoid these losses). In summary, NCSD beneficially reuses 90% of treated effluent from Southland WWTF and would only be able to receive a maximum new water supply benefit of 90 afy if all 900 afy of existing effluent is reused for irrigation.

NCSD Recycled Water Project Concepts

Alternative		Average Annual Demand	Unit Cost Based on	
ID	Description		Annual Demand	Water Supply Benefit
N1a	Nipomo Regional Park Project	51 afy	$4,790 / AF	$47,900 / AF
N1b	N1a & Blacklake Golf Course Extension	551 afy	$1,730 / AF	$17,300 / AF
N1c	N1a & Monarch Dunes Golf Course Extension	951 afy	$1,310 / AF	$13,100 / AF

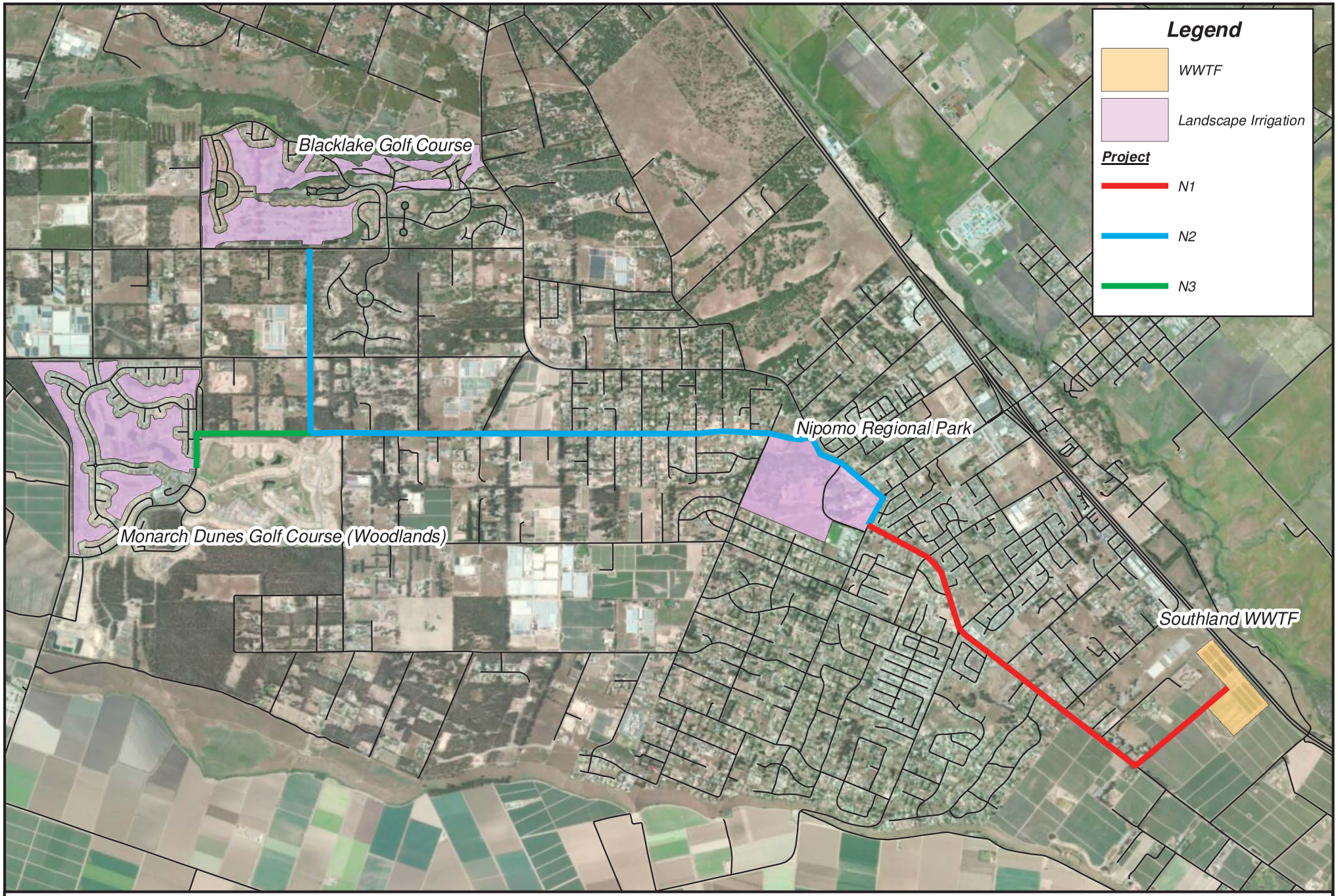
In addition, NCSD recycled water opportunities and constraints include:

- Limited opportunity for direct offset of NCSD potable water use since largest potential customers pump water from their own irrigation well
- Substantial agricultural demand exists in proximity to the Southland WWTF
- Southland WWTF will require an upgrade to tertiary filtration or pumping after percolation to implement a recycled water project
- Additional treatment may be needed to meet water quality requirements of specific customers (e.g., agriculture) resulting in additional costs for treatment and concentrate management

Based on this assessment, a water supply benefit will not drive a NCSD recycled water project. However, recycled water projects could be driven by the need for alternative disposal methods in the future based on potentially stricter waste discharge requirements from the RWQCB.

Next Steps

- Continue to monitor potential mounding of effluent recharge at the Southland WWTF and, if mounding is realized, pursue reuse opportunities
- Work with SSLOCSD representatives on potential cross-basin reuse projects
- Incorporate salt and nutrient management planning into water, wastewater, and recycled water planning.



Nipomo CSD Landscape Irrigation Project Concepts

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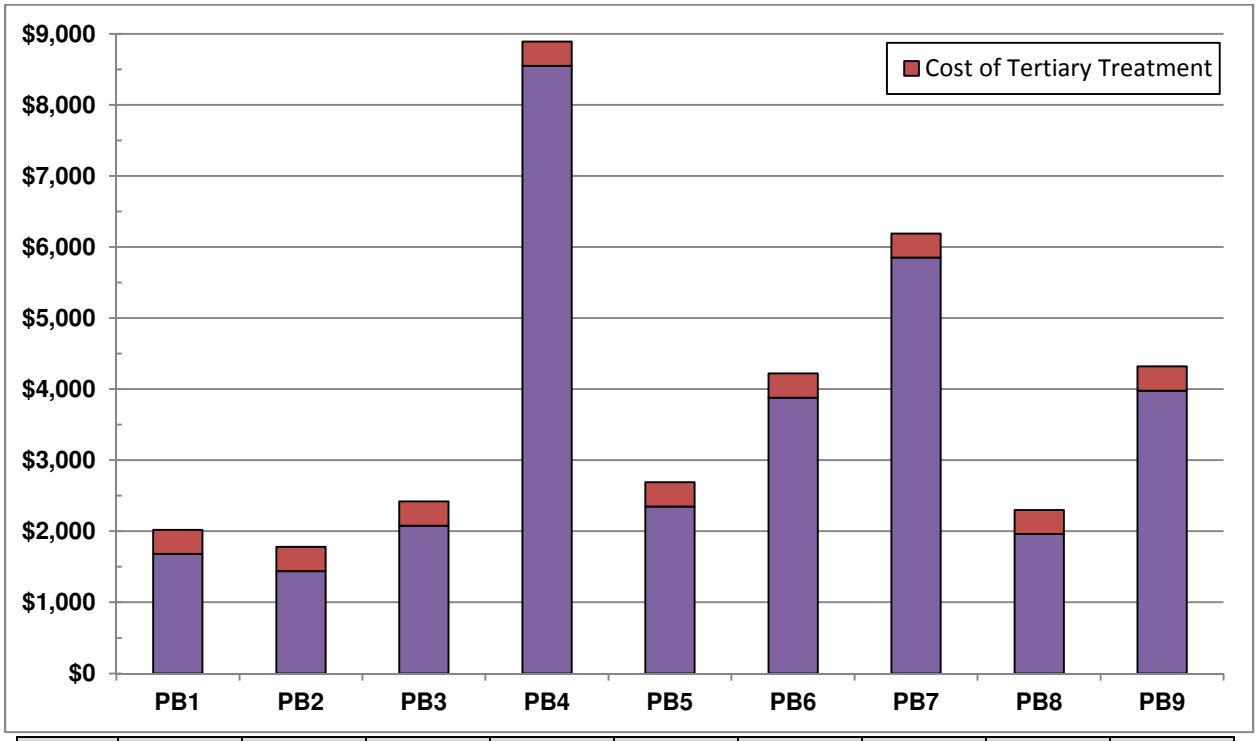
City of Pismo Beach

The Pismo Beach WWTP currently discharges approximately 1.1 mgd (1,230 afy) of disinfected secondary effluent through the joint Pismo Beach / SSLOCSD ocean outfall. Nine landscape irrigation project concepts from the Pismo Beach WWTP were defined. In addition, use of Pismo Beach WWTP effluent in combination with SSLOCSD effluent for larger, regional projects, such as agricultural reuse, groundwater recharge, seawater intrusion barrier, and surface water augmentation are discussed under SSLOCSD in the following section.

Pismo Beach Recycled Water Project Concepts	
Landscape Irrigation Project Concepts PB1: Pismo Beach Sports Complex PB2: Caltrans and Middle School PB3: Price House Historic Park PB4: South to Arroyo Grande PB5: Pismo State Beach Golf Course	PB6: Dinosaur Caves Park PB7: Palisades Park Projects using the existing effluent outfall PB8: Pismo State Beach Golf Course PB9: Western Grover Beach

Unit Costs of Pismo Beach Project Concepts ($/AF)



AFY	16	89	28	26	86	47	62	77	44

Opportunities and Constraints

Based on findings from the project concepts development process, preliminary recycled water opportunities and constraints for Pismo Beach include:

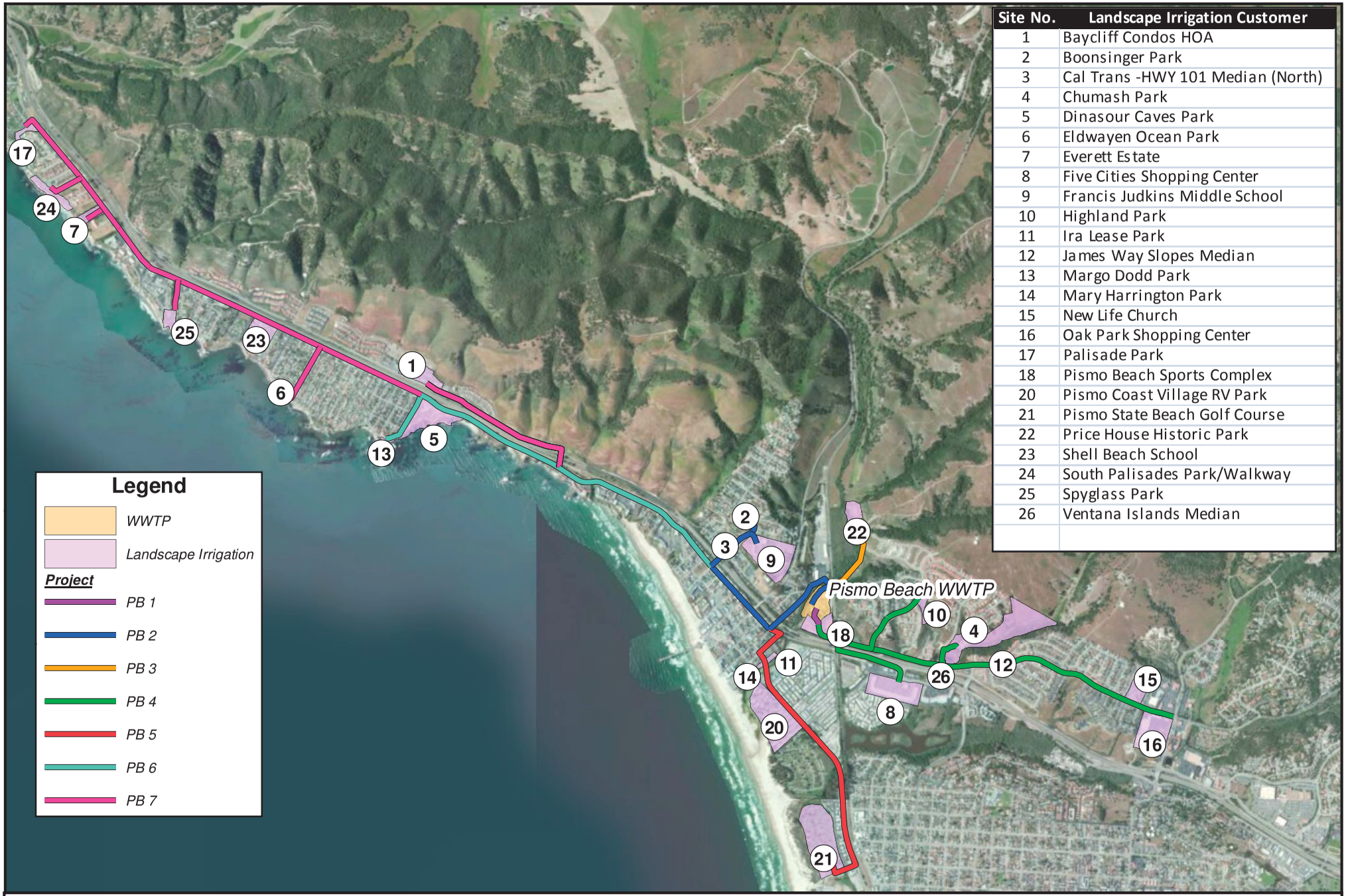
- Maximizing reuse will require more types of uses than just existing landscape irrigation.
- Approximately 130 afy of landscape irrigation demand is located within 0.5 mile of the WWTP, which offers promising reuse opportunities. However, demand estimates for several key potential customers must be confirmed before proceeding much further with planning.

- Tertiary treatment upgrades for small treatment plant commonly have high unit costs due to the lack of scale and could result in high project unit costs for service to customers close to the WWTP.
- There is potential for large recycled water use from new development if approved by the City.
- Two of the largest potential customers – Pismo Beach Sports Complex and Pismo State Beach Golf Course – are not Pismo Beach potable water customers, so their water supply benefit must be achieved through groundwater exchange.
- Most landscape irrigation customers have relatively low demands and are spread across the city, which causes service to these customers have high unit costs.
- Use of Pismo Beach effluent for agricultural irrigation is potentially the most cost-effective reuse project as long as the Pismo Beach receives a water supply benefit. Agricultural irrigation is included in the SSLOCSD section.
- Use of Pismo Beach effluent for groundwater recharge is a viable option and is included in the SSLOCSD section.

The City recently purchased abandoned oil pipelines with the intent to consider their use for conveyance of recycled water. This option could potentially reduce distribution infrastructure costs and make more landscape irrigation projects cost effective. This concept will be evaluated as part of the City's Recycled Water Facilities Plan, which is currently being prepared and is expected to be completed in early 2015.

Next Steps

- Prepare Recycled Water Facilities Plan in consultation with regional stakeholders and the SWRCB.
- Investigate ability to use abandoned oil lines for recycled water conveyance. The RRWSP did not consider this option and its application could make non-potable reuse cost effective for the City.
- Confirm demand estimates for cost effective projects
- Explore alternative tertiary treatment method geared toward relatively small flows (i.e. 0.1 to 0.3 mgd)
- Evaluate the cost to retrofit Pismo Beach State Golf Course and the ability for the city to receive groundwater benefits
- Refine potential projects to develop a phased recycled water program
- Continue discussions with new development (if approved by the City) regarding recycled water demand and funding
- Consider use of the existing outfall as a recycled water conveyance facility (but only if 100% tertiary treatment conversion is planned)
- Compare costs of viable projects with alternative water supplies
- Continue to participate in discussions with regional SSLOCSD projects that could put Pismo Beach effluent to beneficial use and confirm the ability of the City to receive a water supply benefit
- Incorporate salt and nutrient management planning into water, wastewater, and recycled water planning.



Site No.	Landscape Irrigation Customer
1	Baycliff Condos HOA
2	Boonsinger Park
3	Cal Trans -HWY 101 Median (North)
4	Chumash Park
5	Dinasour Caves Park
6	Eldwayen Ocean Park
7	Everett Estate
8	Five Cities Shopping Center
9	Francis Judkins Middle School
10	Highland Park
11	Ira Lease Park
12	James Way Slopes Median
13	Margo Dodd Park
14	Mary Harrington Park
15	New Life Church
16	Oak Park Shopping Center
17	Palisade Park
18	Pismo Beach Sports Complex
20	Pismo Coast Village RV Park
21	Pismo State Beach Golf Course
22	Price House Historic Park
23	Shell Beach School
24	South Palisades Park/Walkway
25	Spyglass Park
26	Ventana Islands Median

Pismo Beach Landscape Irrigation Project Concepts

San Luis Obispo County
Regional Recycled Water Strategic Plan
Executive Summary
DRAFT JUNE 2014

Cannon
1050 Southwood Drive
San Luis Obispo, CA 93401

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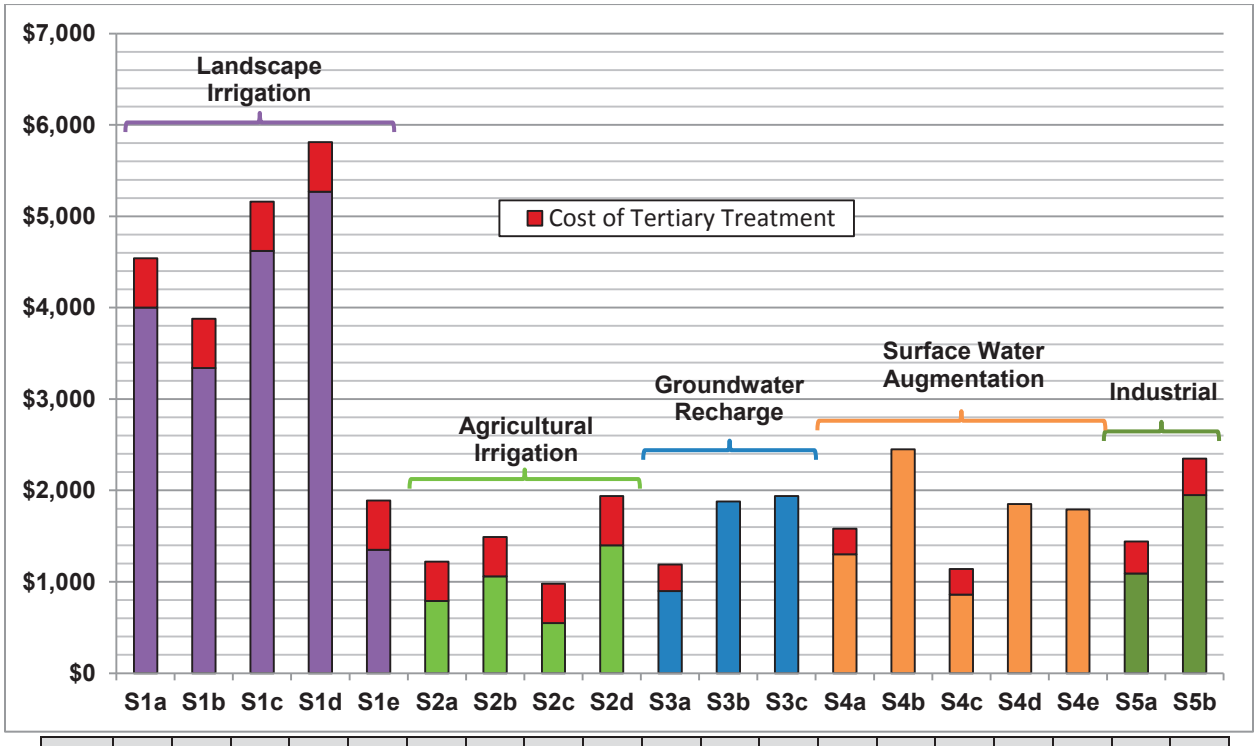
Northern Cities – SSLOCSD

The SSLOCSD WWTP currently discharges approximately 2.6 mgd of disinfected secondary effluent through a joint ocean outfall (shared with Pismo Beach). Approximately 1.1 mgd of disinfected secondary effluent from Pismo Beach WWTP is discharged through the same ocean outfall. SSLOCSD has the largest volume of effluent considered in the RRWSP and the largest opportunities for large-scale reuse; however, landscape irrigation projects are expensive ($3,000+/af) and the more cost effective reuse opportunities – agricultural irrigation, industrial reuse, groundwater recharge, seawater intrusion barrier, and surface water augmentation – will require institutional, legal, outreach, and financial planning to be feasible.

SSLOCSD Recycled Water Project Concepts	
Landscape Irrigation Project Concepts	Groundwater Recharge Project Concepts
S1a. Small Landscape Irrigation Project	S3a. GWR via surface spreading (60% RO)
S1b. Core Landscape Irrigation Project	S3b. GWR via surface spreading (Full AWT)
S1c. Extension to Grover Beach Project	S3c. GWR via injection (Full AWT)
S1d. Extension North of Highway 101 Project	Surface Water Augmentation Project Concepts
S1e. Nipomo Mesa Golf Courses	S4a. Arroyo Grande Creek Augmentation (80% RO)
Agricultural Irrigation Project Concepts	S4b. Arroyo Grande Creek Augmentation (Full AWT)
S2a. Direct delivery over 12 hours each day (Tertiary)	S4c. Los Berros Creek Augmentation (80% RO)
S2b. S2a with 40% RO	S4d. Los Berros Creek Augmentation (Full AWT)
S2c. Direct delivery over 24 hours each day (Tertiary)	S4e. Lopez Reservoir Augmentation (Full AWT)
S2d. S2a; Serving 50% of estimated demand	Industrial Reuse Project Concepts
	S5a. Tertiary Treatment
	S5b. Full RO

Unit Costs of SSLOCSD Project Concepts ($/AF)



AFY	12	162	44	52	1890	1890	1810	1890	1200	2760	2390	2390	2670	2390	2670	2390	2390	1100	1100

Overall, the amount of reuse for landscape irrigation is limited by the demand, while supply limits the amount of agricultural irrigation during the peak demand season (summer). Groundwater recharge and reservoir augmentation are limited by supply. Stream augmentation could be limited by supply or demand depending on future regulatory scenarios related to the volume of flow required at different points in the creek in the Habitat Conservation Plan.

Opportunities and Constraints

Based on the project concepts development process, SSLOCSD recycled water opportunities and constraints include the following:

- Reuse from SSLOCSD WWTP will require upgrade to tertiary treatment.
- Additional treatment may be needed to meet water quality requirements of specific customers (e.g., agriculture) or discharge regulations for specific types of reuse (e.g., stream augmentation or indirect potable reuse).
- Landscape irrigation projects have the highest unit costs due to limited demand in proximity to the SSLOCSD WWTP.
- Agricultural irrigation projects have the lowest unit costs due to substantial agricultural demand in proximity to the SSLOCSD WWTP.
- GWR and stream augmentation projects have moderate unit costs and include a range of costs primarily due to the level of treatment assumed for each project.
- GWR regulations limit the potential for cost effective projects due to the need for blend water.
- GWR and stream augmentation projects offer the highest volume of reuse.
- Industrial reuse has moderate unit costs and could potentially be combined with agricultural reuse since the industrial pipeline has the same alignment as the primary agricultural pipeline.

Next Steps

General

- Complete planned treatment plant improvements and re-evaluate facilities needed to implement tertiary treatment upgrade.
- Track regulatory drivers and their impacts on reuse opportunities from SSLOCSD WWTP, including:
    - RWQCB Waste Discharge Requirements (NPDES Permit)
    - NOAA Habitat Conservation Plan
    - California Coastal Commission Coastal Development Permit
    - Flood Protection / SWRCB Statewide General WDRs for Sanitary Sewer Systems, Water Quality Order No. 2006-0003
- Address institutional issues and potential funding mechanisms for regional projects
    - Discuss cost sharing of projects between water and wastewater agencies or water/sewer funds.
    - Discuss operations and management of the project
    - Discuss the logistics and legal basis for groundwater exchanges.
    - Coordinate with Pismo Beach reuse plans to identify the most cost effective reuse projects for the NCMA.
    - Develop project concepts sufficiently to position for grant funding opportunities

  - Initiate discussions with member agencies about project funding between the water supply entities (Arroyo Grande, Grover Beach, and Oceano CSD) and SSLOCSD.
  - Investigate funding mechanisms for regional projects that benefit NCMA pumpers in addition to SSLOCSD and its member agencies.
  - Discuss support for use of SSLOCSD recycled water in the NMMA and the related ability to receive water supply benefits in the NCMA.
- Incorporate salt and nutrient management planning into water, wastewater, and recycled water planning.

Nipomo Mesa Golf Courses

- Confirm demand estimates that account for future growth
- Address issues associated with use of NCMA effluent in the NMMA.

Agricultural Irrigation

- Initiate planning for agricultural reuse program to enable a project to be developed within 10 years.
- Conduct outreach to agricultural operations in the area determine willingness to use recycled water in the future and obstacles to implementation.
- Set up a pilot study potentially in conjunction with Cal Poly[1] similar to the Paso Robles Recycled Water Demonstration Garden. Identify funding source for a pilot project.

Industrial Reuse

- Discuss reuse options with Phillips66 refinery.
- Address issues associated with use of NCMA effluent in the NMMA.

Groundwater Recharge / Seawater Intrusion Barrier

- Track regulations associated with groundwater recharge and surface water augmentation that impact the basis of projects in the RRWSP.
- Further investigate NCMA groundwater basin, potentially with a groundwater model, to identify surface recharge locations, inland injection locations, and coastal injection locations. Define the benefits of these projects to the basin, particularly the prevention of seawater intrusion.
- Determine benefits of and need for a seawater intrusion barrier (via direct injection or in-lieu reuse) and groundwater levels that would necessitate its use. Determine the value of groundwater protected from seawater intrusion.

Streamflow Augmentation

- Continue to track developments in Arroyo Grande Creek flow requirements / restrictions.
- Track new and potential surface water discharge regulations.

[1] California Polytechnic State University San Luis Obispo, Irrigation Training & Research Center; www.itrc.org

SSLOCSD Recycled Water Project Concepts

San Luis Obispo County
Regional Recycled Water Strategic Plan
Executive Summary
DRAFT JUNE 2014

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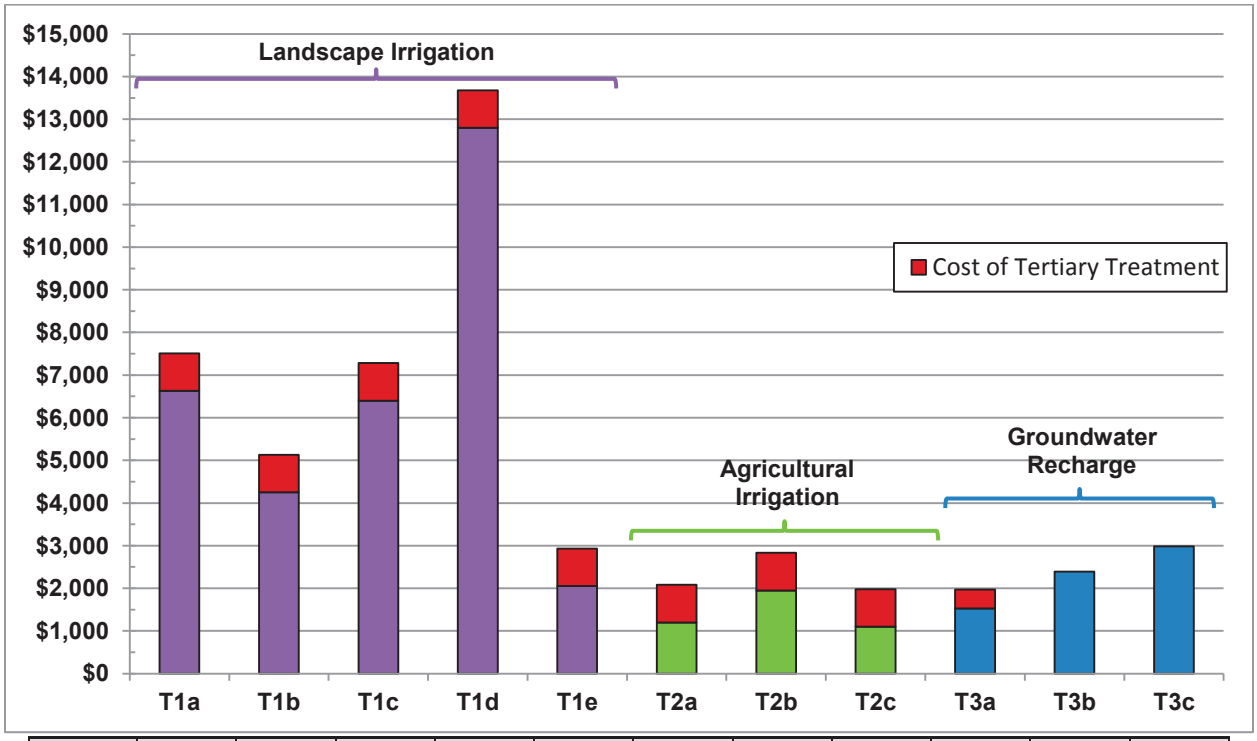
Templeton CSD

Templeton CSD is currently maximizing the water supply benefits of its Meadowbrook WWTP discharges and is planning to divert district sewer flows from Paso Robles WWTP to Meadowbrook WWTP. TCSD is evaluating the percolation capacity of the existing Selby Ponds to handle the proposed flow from the sewer diversion in addition to untreated Nacimiento water, so reuse opportunities are being explored. Most reuse options will require an upgrade to tertiary treatment. Eleven recycled water project concepts were defined for Templeton CSD.

Templeton CSD Recycled Water Project Concepts	
Landscape Irrigation Project Concepts	Agricultural Irrigation Project Concepts
T1a. Downtown Core Landscape Irrigation Project	T2a. Direct delivery over 12 hours each day (Tertiary)
T1b. Evers Sports Park Extension Project	T2b. T2b with 40% RO
T1c. Vineyard Elementary School Extension Project	T2c. Direct delivery over 24 hours each day (Tertiary)
T1d. Jermin Park Extension Project	Groundwater Recharge Project Concepts
T1e. Commercial Landscape Irrigation (Equestrian Center) Project	T3a. GWR via surface spreading (60% RO)
	T3b. GWR via surface spreading (Full AWT)
	T3c. GWR via injection (Full AWT)

Unit Costs of TCSD Project Concepts ($/AF)



AFY	27	16	20	5	160	260	260	260	530	500	500

Opportunities and Constraints

Based on the project concepts development process, TCSD recycled water opportunities and constraints include the following:

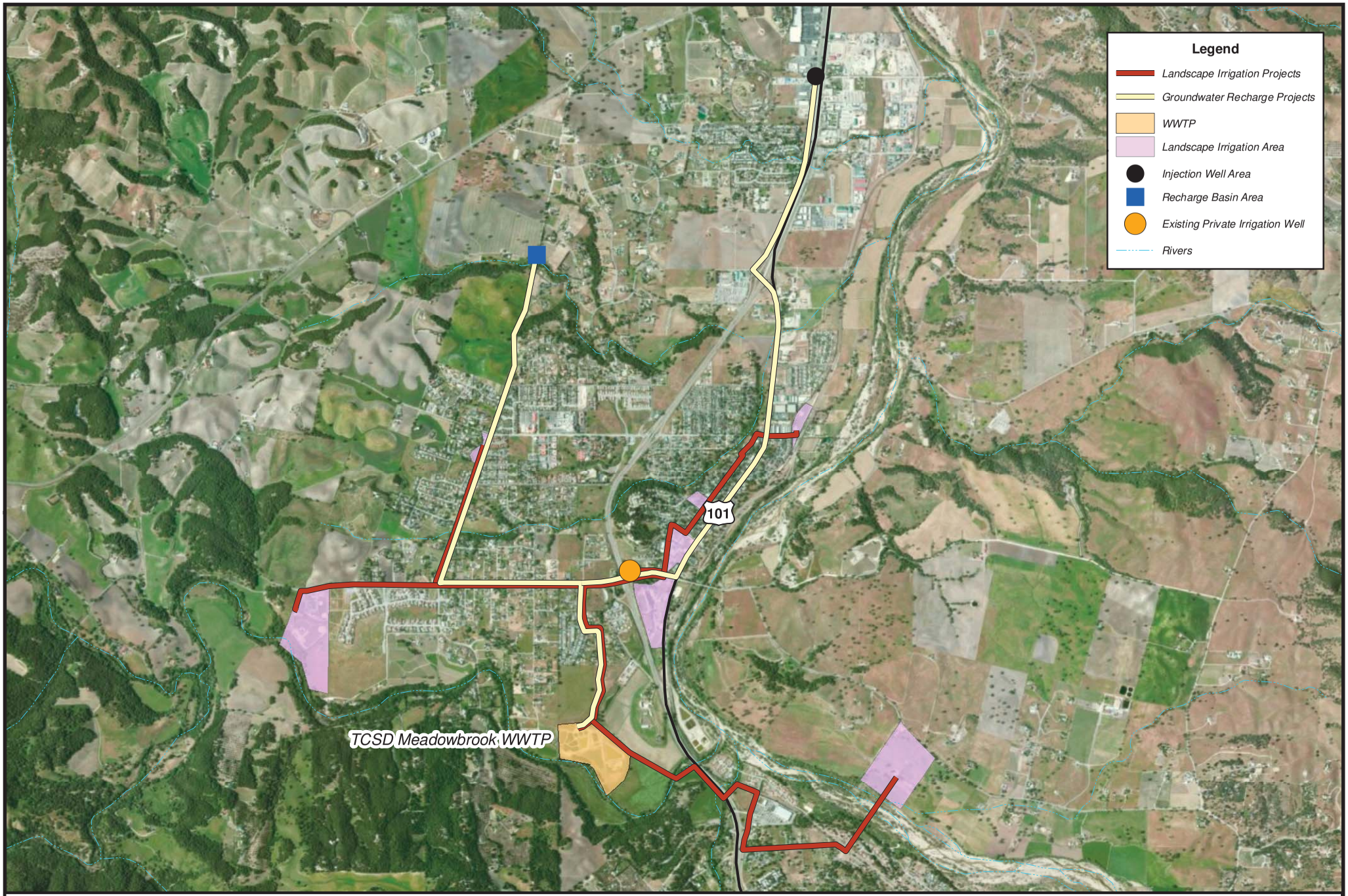
- Reuse via percolation at the Selby Ponds is the preferred use of Meadowbrook WWTP effluent.

- Significant increases to effluent flows are dependent on a combination of septic tank conversions, build-out growth, and diversions from the East Side Force Main and Lift Station Project.
- Potential for reuse of up to 0.2 mgd of effluent without treatment upgrades for feed and fodder irrigation but the reuse would not offset potable water demand.
- Reuse from Meadowbrook WWTP with a water supply benefit will require at least an upgrade to tertiary treatment.
- Additional treatment may be needed to meet water quality requirements of specific customers (e.g., agriculture) or regulations for specific types of reuse (e.g., GWR).
- Landscape irrigation projects have high unit costs due to limited demand in proximity to the WWTP.
- Commercial landscape irrigation (i.e., equestrian farm) has moderate unit costs due to moderate demand.
- Agricultural irrigation has moderate unit costs due to moderate demand in proximity to the Meadowbrook WWTP but a proper market assessment was not conducted.
- GWR has moderate unit costs due to treatment requirements and has the highest volume of reuse all effluent. There is an opportunity to include Nacimiento Water in GWR plans as well. However, costs to incorporate blend water are not included.

Next Steps

TCSD plans to incorporate feasible projects into the District's planned Integrated Water Resources Strategic Plan and must be able to adjust reuse needs based on future percolation performance of the Selby Ponds and actual increases to future flows. Therefore, TCSD should:

- Incorporate commercial irrigation, agricultural irrigation, and groundwater recharge options into the forthcoming Integrated Water Resources Strategic Plan.
- Continue investigation into improving recharge capacity at Selby Ponds through WWTP improvements as well as upgrades and improvements to the ponds.
- Considers water supply benefits and impacts to discharge capacity of continued recharge of Nacimiento water in the Selby Ponds.
- Refine feed and fodder disposal option as a temporary disposal alternative until Selby Pond recharge capacity is better known.
- If Selby Ponds cannot recharge all effluent, refine agricultural irrigation and commercial irrigation options.
- Survey private agricultural and large turfgrass operations in the vicinity of the WWTP for their interest in recycled water use combined with the ability for TCSD to use a similar amount of groundwater currently being used by the entity.
- Consider inclusion of Nacimiento water with recycled water groundwater recharge plans.
- Track GWR regulations for changes that may improve economics of GWR concepts, particularly the need for blend water.
- Incorporate salt and nutrient management planning into water, wastewater, and recycled water planning.



Templeton CSD Recycled Water Project Concepts

San Luis Obispo County
Regional Recycled Water Strategic Plan
Executive Summary
DRAFT JUNE 2014

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Other Potential Recycled Water Projects

The RRWSP focused on defining projects in five areas across the region but many more relevant opportunities exist.

North County

- **City of Atascadero:** The City currently reuses non-potable discharges at Chalk Mountain Golf Course and is currently preparing a Wastewater Collection System and Treatment Plant Master Plan update that is evaluating reuse at local parks and Atascadero Lake but no projects were defined at the time the RRWSP was prepared.
- **Heritage Ranch CSD:** HRCSD currently discharges effluent that eventually enters an unnamed tributary to the Nacimiento River. The district is considering construction of a spray irrigation discharge site to reduce discharge to surface waters.
- **City of Paso Robles:** The City is currently upgrading its WWTP to an advanced secondary (nutrient removal) process and has begun preliminary design of filtration and disinfection processes that are necessary to produce tertiary quality recycled water. The City recently adopted a Recycled Water Master Plan that identifies areas in east Paso Robles where recycled water may be used to offset pumping from the Paso Robles Groundwater Basin. Also, a major vineyard owner has expressed interest in purchasing recycled water for in-lieu recharge of the Paso Robles Groundwater Basin.

North Coast

- **California Men's Colony:** CMC currently reuses tertiary effluent at Dairy Creek Golf Course and helps to maintain a continuous flow rate of 0.75 cfs in Chorro Creek. CMC is also a regional site considered by the City of Morro Bay and Cayucos CSD for treatment of their effluent.
- **Cambria CSD:** CCSD's effluent discharges serve as a barrier to seawater intrusion. CCSD is currently pursuing an indirect reuse project involving extraction and treatment brackish groundwater near the effluent percolation ponds and is considering future non-potable reuse options.
- **Los Osos WWTP:** The new WRF plant started construction in 2014 and startup is planned for 2016. Reuse will occur via agricultural irrigation, landscape irrigation, and discharge to leach fields. The volume to each type of use is currently being defined through potential customer outreach.
- **San Simeon CSD:** The district installed a 36,000 gpd tertiary filtration system in 2013. Current reuse is via hauling by truck for irrigation of commercial properties. The district has plans to construct a distribution system in phases as funds become available.

South County

- **Rural Water Company:** All effluent is currently reused at the Cypress Ridge Golf Course and capacity remains to reuse more effluent at the course as flows to the plant increase.
- **City of San Luis Obispo:** The City is currently updating its Recycled Water Master Plan to develop plans to expand the system from existing use of 160 afy. There is also a possibility of recycled water sales to agricultural customers on the edge of the city limits, but the City ordinance limits sales of City water supplies to within city limits.
- **Woodlands Mutual Water Company:** All effluent is currently reused at the Monarch Dunes Golf Course and capacity remains to reuse more effluent at the course as flows to the plant increase.

Regional Opportunities, Constraints, and Recommendations

Ultimately, recycled water is one of many water resources options for the region. As presented in the RRWSP, there are several potential recycled water projects across the region that can provide cost effective benefits. A number of factors must be present to successfully implement a cost effective recycled water project, including water supply needs, recycled water supply and demand, acceptable economics, and protection of public health. Local conditions across the region result in a range of recycled water project opportunities and constraints. There are also opportunities and constraints that apply across the region. This section discusses these opportunities and constraints and outlines potential recommendations to move recycled water projects forward on a regional level.

Regional Opportunities and Constraints

The project concepts considered in the RRSWP revealed several recycled water opportunities across the region as well as substantial obstacles to implementation of successful projects. All the reuse projects considered in the RRWSP are technically feasible and some are cost effective but barriers remain to successful project implementation. The most common drivers for recycled water projects across the State are:

- Need for new water supply
- Occurrence of significant seawater intrusion
- Wastewater discharge restrictions

Portions of these drivers are present across the region but not to the degree to support significant recycled water investments. These drivers may increase in the future and would improve the opportunity for reuse projects. Each driver is discussed further here.

Water Supply Need

The need for a new, local, and reliable water supply is the primary driver for recycled water projects in the region. However, the region currently lacks the need for a new, *large* water supply. (Although, the 2014 drought is testing this assumption). Recycled water projects typically have strong economies of scale since the two largest components – treatment and pipelines – have economies of scale. Several potentially viable large (1,000+ afy) recycled water projects were identified but the need for this volume of new water by the individual sponsoring agency has not been demonstrated. The need may be present when considered across multiple water suppliers. A few small, cost effective (< 100 afy) recycled water projects were defined and showed some viability until the cost of small-scale treatment is included. This is the region-wide dilemma for recycled water.

On the other hand, desalination is the other primary potential large, new source of water for the county and studies of potential desalination plants in the County[2] resulted in water supply unit costs ranging from $3,000/af to $3,900/af. In addition, desalination raises non-monetary concerns, such as impact to the marine setting and energy intensity. Most recycled water project concepts in the RRWSP are more cost effective and have less environmental impacts than desalination.

Also, the maximum recycled water rate for willing agricultural customers is the cost of current water supplies, which is roughly of the avoided cost of groundwater pumping. Agricultural reuse

[2] South San Luis Obispo County Desalination Funding Study (Wallace, October 2008); Evaluation of Desalination as a Source of Supplemental Water, Administrative Draft, Technical Memorandum 2 (Boyle, September 2007)

project concepts are some of the most cost effective projects in the region but the full cost of recycled water is significantly higher than groundwater. As a result, successful agricultural reuse projects require creative funding and financing plans.

Occurrence of Significant Seawater Intrusion

The NCMA and NMMA have reduced pumping in recent years to avoid seawater intrusion and, on a smaller scale, Morro Bay, San Simeon, and Cambria have managed pumping to avoid seawater intrusion. To date, their efforts appear to be effective and there does not appear to be a need for a new seawater intrusion barrier. However, conditions may change that could necessitate the need for a new barrier. Recycled water could be recharged via percolation or injection to create a barrier or could provide in-lieu supplies to groundwater pumpers overlying the coastal area threatened by seawater intrusion.

Wastewater Discharge Restrictions

The cost to meet NPDES discharge requirements is generally attributed to wastewater rates and additional costs to produce recycled water are attributed to the recycled water system. Treatment plant upgrades can be a significant project cost, especially the initial phases, and most plants to date have not been required to upgrade to tertiary effluent. Placing the full cost of tertiary treatment plant upgrades with the benefitting recycled water project reduces the potential for a cost effective recycled water project in most cases. However, the future direction of wastewater discharge requirements is toward greater strictness and may require WWTP upgrades that would benefit reuse.

Regional Obstacles and Recommendations

The following table summarizes recycled water obstacles from a regional perspective and recommendations to address these obstacles. The table is followed by a review of regional opportunities, constraints, and recommendations for specific types of reuse projects.

Regional Recycled Water Obstacles and Recommendations

Obstacle	Recommendation
Leadership / Advocate	
Water supply projects take many years (and election cycles) from concept to operations and, as a result, many are put on hold from political and/or staff turnover. Recycled water projects can also take just as long and can cause additional political or staff concerns due to public misunderstanding or misleading information. Therefore, most successful large recycled water projects include respected scientific, public health, environmental, and political advocates to move the project forward by being able to champion the project benefits, help gain the public's trust, and assist to mitigate opposition.	- Identify recycled water champions in multiple fields - scientific, public health, environmental, and political - to support projects. - Support and facilitate regional projects with costs and benefits spread across diverse entities. - Advocate for highest and best use of existing potable water.
Cost	
Recycled water projects costs are too high to gain support.	- Identify new water supply needs based on existing water quantity, quality, or reliability. - Establish specific need for reuse (if appropriate) as part of an integrated water resources plan. - Complete advance project planning and/or preliminary design to for future funding for pilot projects, WWTP upgrades, and delivery systems. - In the future, reconsider feasible projects that may not be cost effective at this time, as the value of recycled water to municipalities grows as limits and reliability of existing sources are strained further.
Cost of treatment plant upgrades to tertiary treatment is an obstacle. Further tightening of discharge requirements will help support reuse as funds are committed to treatment plant upgrades.	- Plan for tertiary treatment upgrades in WWTP facility plans. - Identify funding sources other than recycled water projects for WWTP upgrades.
Brine disposal in the inland setting is a major hurdle for reuse (and any other salt management efforts).	- Incorporate recycled water planning into salt and nutrient management planning to identify the best management measures.
Benefits	
Reuse has clear benefits but many of the benefits are distributed across all water users. Most cost effective opportunities provide water supply benefits beyond the municipalities producing the recycled water.	- Grant funding can help address the contradiction between the lead agency / primary funding source and project beneficiaries. - Advocate for grant funding of recycled water projects in areas attempting to reduce dependence on local groundwater to improve project economic viability.
Legal	
Existing groundwater users do not have a mechanism to transfer their groundwater rights in exchange for use of alternative water supplies as is the case in most adjudicated groundwater basins.	- Start discussions with all groundwater basin pumpers to develop a mechanism to exchange groundwater rights for use of alternatives water supplies.

Obstacle	Recommendation
Financing	
Reliance on a single or low number of customers can cause payback issues if the demand is overestimated or the customer may not exist in the future.	- Confirm recycled water demand estimates and costs to convert each potential recycled water customer. - Get customer commitments prior to start of design and construction to properly design facilities and ensure revenue for loan payments.
Institutional	
Recycled water projects are often times positioned to provide regional benefits that face the challenges of bringing multiple sub-regional political entities together with diverse goals.	- Leverage existing sub-regional water planning groups, such as NCMA and NMMA, to identify key stakeholders and gain support.
Water and wastewater are handled by separate agencies in some areas, causing cost sharing / allocation issues.	- Define water and wastewater benefits of recycled water projects to support cost allocation.
Public Acceptance	
Recycled water projects, particularly involving potable reuse, require thorough, planned public outreach efforts; however, these efforts tend to be underfunded and reactionary instead of proactive, all-embracing, and well-timed.	- Make sure to include funding for initial and ongoing public outreach specific to the targeted groups.
Regulatory	
Some aspects of SWRCB and RWQCB requirements continue to treat recycled water as a waste and not a resource. The perspective is slowly shifting but still remains a hindrance.	- New General Waste Discharge Requirements for Recycled Water Use (WQO 2014-0090) (adopted 6/3/2014) provides a number of improvements to standard reuse permit requirements.
Recycled water project implementation is tied to preparation of salt and nutrient management plans for overlying groundwater basins and plan outcomes may hinder use of recycled water.	- Move forward with salt and nutrient planning in all basins where reuse is being considered and incorporate recycled water plans into the effort.
Policies	
Mandatory use and other similar policies are not in place in most jurisdictions.	- Any jurisdiction implementing a recycled water project should adopt a mandatory use ordinance to demonstrate political support and to be eligible for most grant funds or low-interest loans. - Have developers include 'purple pipe' in new developments within a reasonable distance from the WWTP or planned distribution system. Consider applying California Water Code (CWC) 13551[3] provisions if necessary.

[3] CWC Section 13551: "A person or public agency…shall not use water from any source of quality suitable for potable domestic use for non-potable uses… if suitable recycled water is available as provided in Section 13550."

Landscape Irrigation

Urban landscape irrigation represents the most common type of reuse across California followed by environmental flows and agricultural irrigation. It is the first use for recycled water for most municipal areas since opportunities for agriculture irrigation or environmental flows are limited in these settings. As a result of decades of project operations, implementation of landscape irrigation projects is generally straightforward and involves the least obstacles – with the exception of cost.

There is limited opportunity for cost effective landscape irrigation in the region for a combination of reasons:

- There is a limited amount of large landscape areas due to long-standing water conservation measures taken.
- Most of the existing large landscape areas are golf courses and most of these use at least some recycled water or non-potable groundwater. (Although significant volumes of potable water are used at these courses too to meet irrigation demand).
- Potential large landscape areas identified in the RRWSP are too far from existing WWTPs and/or demands are too small for cost effective distribution to the sites.
- The small opportunities that exist require WWTP upgrades to tertiary treatment, which generally have high unit costs on a small scale.

Several potential landscape irrigation projects are identified in the RRWSP. The cost effective projects are close to the WWTP and/or include a golf course that uses large volumes of potable water. Implementation of the smaller projects is probably more feasible due to the total cost as long as the tertiary treatment portion of the cost can be managed. In addition, successful implementation of small recycled water projects could spur support for expansion in the future.

Agricultural Irrigation

Of the types of recycled water projects evaluated in the RRWSP, agricultural reuse has the most potential across the region. Agricultural water use represents approximately 75% of total water use across the region. Agricultural reuse is advantageous because of the relatively high demand in concentrated areas combined with proximity to the existing WWTPs. Also, agricultural reuse represents matching water quality to use thus freeing potable water for potable uses. Finally, agricultural reuse in coastal locations can serve as a seawater intrusion barrier.

There are many hurdles to successful agricultural reuse projects in the region:

- Recycled water producers realizing a water supply benefit. The benefit can be realized if the agricultural customer agrees to reduce pumping from potable groundwater aquifer(s) by the amount of recycled water used.
- Providing recycled water at a competitive price to existing agricultural water supplies. Recycled water can be sold to agricultural customers at or below their current cost of water supply (primarily groundwater at up to $300/af) but the revenue from recycled water sales would most likely not cover the cost of the recycled water project on its own. To economically justify such a project, the avoided cost of new water supply acquisition must be considered as well as the potable water revenue received from the new potable supply.
- Gaining willing agricultural customers of recycled water due to real and perceived issues.

- Identifying or creating a lead agency with the capability and authority to develop, construct, and operate a regional project.

Agricultural reuse offers one of the best opportunities for recycled water use in the region while also having several obstacles to overcome. Considering this, the region can start to take efforts to address the obstacles by starting discussions on governance, water supply benefits, and recycled water pricing. In addition, steps can be taken to address grower concerns over recycled water use so that these issues can be resolved while the other non-customer issues are addressed. Recommended next steps include:

- Reach out to agricultural interests to determine steps necessary to gain willing customers.
- Conduct technical studies considering specific recycled water quality, soil conditions, and crops.
- Follow technical studies with pilot studies, potentially set in conjunction with Cal Poly[4], similar to the Paso Robles Recycled Water Demonstration Garden.
- Identify funding source(s) for a pilot project.
- Conduct educational tours of existing agricultural reuse projects in Northern, Central, and Southern California.
- Leverage the agricultural resources of the local Resource and Conservation Districts during outreach and implementation.
- Consider application of CWC Section 13551[5] to gain agricultural customers based on the availability of recycled water of adequate quality and at a reasonable cost. (Refer to Section 13.2.1 for further discussion).

Groundwater Recharge

Groundwater recharge with recycled water has some potential opportunities across the region, but geological constraints and treatment requirements cause most projects to be too expensive. The two primary areas considered for recharge – Northern Cities Management Area and Paso Robles Groundwater Basin – have limited areas where water recharged from the surface can reach the potable water aquifers. Injection is needed where surface recharge locations are lacking and injection requires the additional costs of injection wells and advanced treatment (beyond tertiary) of recycled water.

One location where injection could make sense is along the coast as a seawater intrusion barrier. Several key steps were identified for successful implementation of a potential seawater intrusion barrier projects for SSLOCSD. Other than cost, the primary obstacles to GWR with recycled water are:

- Better understanding of the groundwater basin.
- Definition of benefits other than a new water supply, such as preventing seawater intrusion and/or subsidence.
- Receipt of benefits by project sponsors or sharing of costs across all basin beneficiaries.

[4] California Polytechnic State University San Luis Obispo, Irrigation Training & Research Center; www.itrc.org
[5] CWC Section 13551: "A person or public agency…shall not use water from any source of quality suitable for potable domestic use for non-potable uses… if suitable recycled water is available as provided in Section 13550."

Also, the region should track GWR regulations that impact the basis of projects in the RRWSP. For example, currently, groundwater recharge regulations limit the potential for cost effective projects due to the need for a large volume blend water.

Streamflow Augmentation

Streamflow augmentation is an attractive reuse option since many streams now have minimum flow requirements for habitat and/or wildlife preservation. For example, offsetting Lopez Dam releases to Arroyo Grande Creek or increasing stream flow in other portions of the region to allow for pumping would create new water supplies.

However, the largest obstacles to implementation of these projects are surface water discharge regulations. Existing surface water discharge regulations add significant treatment costs and potential regulations would require even higher levels of treatment and the associated costs. This creates a situation where the ultimate cost of a project may not be known once operations start, since new regulations may require new treatment in the future to continue project operations.

To assess streamflow augmentation options in the future:

- Continue to track developments flow requirements and restrictions in in Arroyo Grande Creek and other potential sites across the region
- Track new and potential surface water discharge regulations

Concluding Remarks

The best opportunities for reuse – agriculture and groundwater recharge – align with the region's water resources profile: agriculture comprises approximately 75% of total water use and groundwater represents approximately 90% of water supplies. However, institutional and other implementation issues arise when attempting to allocate costs and realize benefits for agriculture and GWR projects because recycled water is produced by public agencies but beneficiaries extend beyond the municipalities.

Recycled water offers one of the region's best options for new water supplies, especially when compared with the cost and environmental impacts of desalination. However, many recycled water projects are more expensive than additional conservation or fully realizing the relatively recent investments in surface water projects. Additionally, water supply conditions and the associated need for recycled water vary by individual agency while recycled water projects require regional scale to achieve significant water supply benefits and acceptable costs due to economies of scale.

The full cost of recycled water appears to be too high for many areas at this time, but will become more competitive in the future as other options become more expensive, the value of local supplies increases, and successful grant funding helps to subsidize local costs. In the meantime, the region should take the initial steps outlined in the RRWSP to address hurdles to implementation of feasible recycled water projects and provide minimal initial investment in projects to position them for grant funding.

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Appendix Q.

State Guideline Requirements Tables

Appendix Q

2012 IRWM Plan Standards Review Form Tables

Table App Q-1. Governance Requirements 1
Table App Q-2. Region Description Requirements 2
Table App Q-3. Goals and Objectives Requirements 3
Table App Q-4. State Resource Management Strategy Requirements 4
Table App Q-5. Integration Requirements 4
Table App Q-6. Project Review Processes Requirements 5
Table App Q-7. Impacts and Benefits Requirements 6
Table App Q-8. Plan Performance and Monitoring Requirements 6
Table App Q-9. Data Management Requirements 7
Table App Q-10. Finance Requirements 8
Table App Q-11. Technical Analysis Requirements 8
Table App Q-12. Relation to Local Water Planning Requirements 9
Table App Q-13. Relation to Local Land Use Planning Requirements 9
Table App Q-14. Stakeholder Involvement Requirements 10
Table App Q-15. Coordination Requirements 11
Table App Q-16. Climate Change Requirements 11

Table App Q-1. Governance Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Document a governance structure to ensure updates to the IRWM Plan:			
The name of the RWMG responsible for implementation of the IRWMP	Sections B.2, A1.2, A1.3	These sections identify the RWMG lead agency and the IRWM Program Participants.	
A description of the IRWM governance structure	Section B.3, Figure B-4	This section and figure identify the IRWM organizational structure.	
A description of how the chosen form of governance addresses and ensures:			
Public outreach and involvement processes	Section B.4 Communications and Outreach Plan (Appendix C)	Section B.4 and the Outreach Plan describe the stakeholder involvement and public outreach process.	
Effective decision making	Section B.3.2	This section documents the decision making process used at the RWMG meetings	
Balanced access and opportunity for participation in the IRWM process	Sections B.2, B.3, B.4.6	This section identifies the various opportunities for participation in the IRWM Plan and the diverse makeup of the RWMG. Section B.4.6 identifies the variety of ways we communicate (via email and internet) with stakeholders and RWMG members.	
Effective communication – both internal and external to the IRWM region	Section B.4.1 Communications and Outreach Plan (Appendix C)	This Section and the Outreach Plan establish our communication guidelines to facilitate effective internal and external communications.	
Long term implementation of the IRWM Plan	Section B.5	This section outlines the long term implementation of the Plan including updates and amendments to the Plan.	
Coordination with neighboring IRWM efforts and State and federal agencies	Section B.5.4, Section O	These sections address coordination with neighboring IRWM efforts and State and federal agencies.	
The collaborative process(es) used to establish plan objectives	Section E.1 Communications and Outreach Plan	This section describes the process using the Sub-Regional workshops to identify the critical water issues which were used to identify the objectives in each Sub-Region.	
How interim changes and formal changes to the IRWM Plan will be performed	Section B.5.2 Figure B-2	This section describes the process for updating and amending the list of projects and programs. Figure B-2 identifies the IRWM Plan Update schedule and identifies those activities that constitute Plan re-adoption.	
Updating or amending the IRWM Plan	Section B.5.2 Figure B-2	This section describes the process for updating and amending the list of projects and programs. Figure B-2 identifies the IRWM Plan Update schedule and identifies those activities that constitute Plan re-adoption.	
Publish NOI to prepare/update the plan; adopt the plan in a public meeting	Section B.5.1	This section describes the process to publish the Notice of Intent to prepare, update, and adopt the IRWM Plan.	

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Table App Q-2. Region Description Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
If applicable, describe and explain how the plan will help reduce dependence on the Delta supply regionally	Section C.8.6.2	This section describes how the Plan will help the region reduce its dependency on the delta by providing a more integrated water management system.	
Describe watersheds and water systems	Sections C.9, C.5, C.8	Section C.9 describes the watersheds and Section C5 describes the Water Planning Areas which represent the geographical organization within the County. Section C.8 describes the major water infrastructure within the County.	
Describe internal boundaries	Section C.2	This section describes the primary internal boundaries within the IRWM Plan Area which are the Sub-Region Boundaries.	
Describe water supplies and demands for minimum 20 year planning horizon	Section D	This section includes the current and future water demands and supplies through 2035.	
Describe water quality conditions	Section C.11	This section describes the current watershed and groundwater quality conditions based on the available information.	
Describe social and cultural makeup, including specific information on DACs and tribal communities in the region and their water challenges.	Section C.18	This section describes the cultural and Social Profile of San Luis Obispo County.	
Describe major water related objectives and conflicts *	Section C.15	This section describes the regional issues and conflicts with San Luis Obispo Region.	
Explain how IRWM regional boundary was determined and why region is an appropriate area for IRWM planning.	Section C.2	This section describes the relevance and appropriate Regional and Sub-Regional boundaries within the IRWM Plan Area.	
Describe neighboring and/or overlapping IRWM efforts	Section O.2 Section C.19	These sections describe the coordination strategy with the neighboring IRWMP Regions and the Central Coast Funding Area.	
Explain how opportunities are maximized (e.g. people at the table, natural features, infrastructure) for integration of water management activities	Section H	This section describes the project integration opportunities within The IRWM Plan Area.	

* Requirement must be addressed.

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Table App Q-3. Goals and Objectives Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Qualitative Narrative**	**y/n**
Through the objectives or other areas of the plan, the 7 items on pg 41 of GL are addressed.*	Section E.1.2.3, E.2, Table E-4	These sections and table describes how the Plan addresses the CWC minimum requirements.	
Describe the collaborative process and tools used to establish objectives: - How the objectives were developed - What information was considered (i.e., water management or local land use plans, etc.) - What groups were involved in the process - How the final decision was made and accepted by the IRWM effort	Section E.1	This section describes the consensus-based approach used by the stakeholders to update the goals and objectives in each Sub-Region.	
Identify quantitative or qualitative metrics and measureable objectives: Objectives must be measurable - there must be some metric the IRWM region can use to determine if the objective is being met as the IRWM Plan is implemented. Neither quantitative nor qualitative metrics are considered inherently better. *	Section E.4 Tables E-6 to E-10	This section and these tables identify the objectives for each goal and their qualitative or quantitative metric.	
Explain how objectives are prioritized or reason why the objectives are not prioritized	Section E.5	This section describes how the locally driven objectives are used to develop priorities in each Sub-Region.	
Reference specific overall goals for the region: RWMGs may choose to use goals as an additional layer for organizing and prioritizing objectives, or they may choose to not use the term at all.	Section E.2	This section identifies the overall goals for the Region	

* Requirement must be addressed.

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Table App Q-4. State Resource Management Strategy Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Identify RMS incorporated in the IRWM Plan: Consider all California Water Plan (CWP) RMS criteria (29) listed in Table 3 from the CWP Update 2009 *	Section F.2, Table F-1	This section and table show how the 29 RMS were grouped and applied to the Region.	
Consideration of climate change effects on the IRWM region must be factored into RMS	Section F, Table F-2	This section and table include climate change as part of the RMS evaluation.	
Address which RMS will be implemented in achieving IRWM Plan Objectives	Section F.2, Table F-2	This section and table align the DWR RMS with the IRWM Plan objectives.	

* Requirement must be addressed.

Table App Q-5. Integration Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Contains structure and processes for developing and fostering integration [1]: - Stakeholder/institutional - Resource - Project implementation	Section H Figure H-2	This section and figure describe the approach for project integration through the use of project elements.	

November 2012 Guidelines, p. 44.

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Table App Q-6. Project Review Processes Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Process for projects included in IRWM plan must address 3 components: - procedures for submitting projects - procedures for reviewing projects - procedures for communicating lists of selected projects	Section G.2 Figure G-2	This section describes the approach used to identify develop and rank projects.	
Does the project review process in the plan incorporate the following factors:			
How a project contributes to plan objectives	Section G.2.2	This section describes how the plan objectives are utilized to identify project concepts.	
How a project is related to Resource Management Strategies identified in the plan.	Section G.3 App G-5, Table H-1	This section describes how various criteria are used to evaluate projects.	
The technical feasibility of a project.	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	
A projects specific benefits to a DAC water issue.	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	
Environmental Justice considerations.	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	
Project costs and financing	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	
Address economic feasibility	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	
Project status	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	
Strategic implementation of plan and project merit	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	
Project's contribution to climate change adaptation	Section P.13 Table P-9	This section ranks the current projects on climate change.	
Contribution of project in reducing GHGs compared to project alternatives	Section P.13 Table P-9	This section ranks the current projects on GHG emissions.	
Status of the Project Proponent's IRWM plan adoption	Section A	Dates will be provided upon plan adoption.	
Project's contribution to reducing dependence on Delta supply (for IRWM regions receiving water from the Delta).	Section G.3 App G-5	This section describes how various criteria are used to evaluate projects.	

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Table App Q-7. Impacts and Benefits Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Discuss potential impacts and benefits of plan implementation within IRWM region, between regions, with DAC/EJ concerns and Native American Tribal communities	Section I	This section identifies the impacts and benefits of plan implementation by goal by project element and other resources.	
State when a more detailed project-specific impact and benefit analysis will occur (prior to any implementation activity)	Section G.3	Included in Project Form Review Document but no timing is specified due to lack of firm construct date for individual projects	
Review and update the impacts and benefits section of the plan as part of the normal plan management activities	Section I Figure Q-3	This figure shows when this section will be revisited as part of the regular IRWM Plan Update schedule.	

Table App Q-8. Plan Performance and Monitoring Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Contain performance measures and monitoring methods to ensure that IRWM objectives are met *	Section J, Table J-1 to J-5	This section and tables include the objectives, performance measures, and monitoring methods for each IRWM Plan goal.	
Contain a methodology that the RWMG will use to oversee and evaluate implementation of projects.	Section J.4	This section describes the methodology used to monitor project implementation.	

* Requirement must be addressed.

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Table App Q-9. Data Management Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Describe data needs within the IRWM region	Section K.2 and K.3 Table K-4	These sections provide a brief description of the data needs to support ongoing updates and monitoring of the IRWM. Section K.3 identifies some of the data needs and State databases were selected data will be uploaded.	
Describe typical data collection techniques	Section K.4, Table K-2	This section lists all of the Regions data collection activities, data collection techniques, and how the data is generally used.	
Describe stakeholder contributions of data to a data management system	Section K.4	This section describes the various monitoring programs and the local agencies that participate in those programs	
Describe the entity responsible for maintaining data in the data management system	Section K.1	This section describes the role of the District and other agencies in data management activities.	
Describe the QA/QC measures for data	Section K.5	This section describes the data collection QA/QC control measures.	
Explain how data collected will be transferred or shared between members of the RWMG and other interested parties throughout the IRWM region, including local, State, and federal agencies *	Section K.7	This section identifies anticipated features of a data management system.	
Explain how the Data Management System supports the RWMG's efforts to share collected data	Section K.7	This section identifies anticipated features of a data management system to support data sharing and accessibility	
Outline how data saved in the data management system will be distributed and remain compatible with State databases including CEDEN, Water Data Library (WDL), CASGEM, California Environmental Information Catalog (CEIC), and the California Environmental Resources Evaluation System (CERES).	Section K.3, K.7	These sections identify the statewide databases that and future DMS will have to be compatible with and how they will support the exchange of information.	

* Requirement must be addressed.

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Table App Q-10. Finance Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Include a programmatic level (i.e. general) plan for implementation and financing of identified projects and programs* including the following:			
List known, as well as, possible funding sources, programs, and grant opportunities for the development and ongoing funding of the IRWM Plan.	Section L Tables L-4 to L-13	This section and accompanying tables identify sources of local funding as well as State and federal grant programs to support planning activities and implementation if IRWM Plan projects.	
List the funding mechanisms, including water enterprise funds, rate structures, and private financing options, for projects that implement the IRWM Plan.	Section L.2	This section identifies various sources of local government funding that support capital projects as well as operation and maintenance.	
An explanation of the certainty and longevity of known or potential funding for the IRWM Plan and projects that implement the Plan.	Section L.2	This section identifies various sources of local government funding that support capital projects as well as operation and maintenance.	
An explanation of how operation and maintenance (O&M) costs for projects that implement the IRWM Plan would be covered and the certainty of operation and maintenance funding.	Section L.2, App G-5	This section identifies various sources of local government funding that support capital projects as well as operation and maintenance.	

* Requirement must be addressed.

Table App Q-11. Technical Analysis Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Document the data and technical analyses that were used in the development of the plan *	Section M	This section identifies all the existing technical documents which were available to support the Regional and Sub-Regional decisions made by the RWMG members and stakeholders. This list includes existing studies, studies completed under a Proposition 50 planning grant, and the current Proposition 84 planning grant.	

* Requirement must be addressed.

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Table App Q-12. Relation to Local Water Planning Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Identify a list of local water plans used in the IRWM plan	Section N, Table N-1	This section identifies the local agencies and the water planning documents produced in the Region in setting land and water use policies which were used by local agencies to support their participation in the IRWM Plan.	
Discuss how the plan relates to these other planning documents and programs	Section N.1 Table N-1	This section identified the planning documents and describes how the Plan relied upon the existing documents which document the local agency policies, goals and actions etc. used to develop the Plan	
Describe the dynamics between the IRWM plan and other planning documents	Section N.6	This section describes how the IRWM Plan was designed to combine and build upon the strategies and recommendations of the local planning documents.	
Describe how the RWMG will coordinate its water mgmt planning activities	Section N.7	This section identifies several of the regulatory issues that are high priority to the water purveyors. This section also identifies the role of the IRWM Plan to provide a forum to encourage communication on water management issues.	

Table App Q-13. Relation to Local Land Use Planning Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Document current relationship between local land use planning, regional water issues, and water management objectives	Section N	This section starts by looking at opportunities to improve the sustainability of the region's water resources. It includes a comprehensive list of the most current and relevant local land and water use plans. These plans and their relationship to the IRWM Plan are described on Table N-1.	
Document future plans to further a collaborative, proactive relationship between land use planners and water managers	N.6.1		

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Table App Q-14. Stakeholder Involvement Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Contain a public process that provides outreach and opportunity to participate in the IRWM plan *	Section B.4, Communications and Outreach Plan	This section describes how all RWMG meetings and workshops are open to the public. Meeting and workshop announcements are noticed by email to stakeholders and posting on the County website.	
Identify process to involve and facilitate stakeholders during development and implementation of plan regardless of ability to pay; include barriers to involvement *	Section B.4, Communications and Outreach Plan	The Public Outreach Plan describes the six DAC Visioning Workshops and Focus Group meetings were held at the outset of the Plan Update to encourage active and sustained participation of representatives of DACs in a manner that is consistent with their cultural economic and social considerations.	
Discuss involvement of DACs and tribal communities in the IRWM planning effort	Section B.4.4 Communications and Outreach Plan	All DAC's are signatory to the San Luis Obispo County Region Integrated Regional Water Management Program Memorandum of Understanding (MOU).	
Describe decision-making process and roles that stakeholders can occupy	Section B.3.2, Communications and Outreach Plan	This section describes the approach for stakeholder participation, and decision making by the RWMG members.	
Discuss how stakeholders are necessary to address objectives and RMS	Section B.4.3, Communications and Outreach Plan	This section describes stakeholder participation in Sub-Regional workshops where data, issues, and information is presented, and draft goals and objectives, resource management strategies, and other items are developed.	
Discuss how a collaborative process will engage a balance in interest groups	Section B.2, Figure B-2, Communications and Outreach Plan	This section describes how the IRWMP builds upon long-term water resources planning activities in County including use of the Water Resources Advisory Committee (WRAC). The diverse Regional Water Management Group) (RWMG) includes 24 members from throughout the County. In addition, the s Public Outreach Plan identifies additional interest stakeholders beyond both the WRAC and RWMG.	

* Requirement must be addressed.

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Table App Q-15. Coordination Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Identify the process to coordinate water management projects and activities of participating local agencies and stakeholders to avoid conflicts and take advantage of efficiencies *	Section O.1 Section O.5	This section identifies various water resource related agencies and stakeholders that are important to coordinate with and provides examples of cooperative agreements and other inter-agency coordination efforts within the IRWM Region.	
Identify neighboring IRWM efforts and ways to cooperate or coordinate, and a discussion of any ongoing water management conflicts with adjacent IRWM efforts	Section O.2 Section O.5	This section identifies the coordination activities with adjacent regions (Section O.2) and cooperative agreements and coordination efforts (Section O.5)	
Identify areas where a state agency or other agencies may be able to assist in communication or cooperation, or implementation of IRWM Plan components, processes, and projects, or where State or federal regulatory decisions are required before implementing the projects.	Section O.3, Table O-2 Table O-3	This section identifies State and federal agencies that may play a role in implementing IRWM projects, including potential permitting responsibilities	

* Requirement must be addressed.

Table App Q-16. Climate Change Requirements

Requirement	Evidence of Sufficiency		Sufficient
From IRWM Guidelines	**Location of Standard in Grantee IRWM Plan**	**Brief Evaluation Narrative**	**y/n**
Evaluate IRWM region's vulnerabilities to climate change and potential adaptation responses based on vulnerabilities assessment in the DWR Climate Change Handbook for Regional Water Planning *	Section P.10, Table P-6	This section identifies and ranks the Sub-Region's vulnerabilities to climate change.	
Provide a process that considers GHG emissions when choosing between project alternatives *	Section P.13.2 Table P-8	This section identifies how the top 15 projects were evaluated using a qualitative mitigation potential to address GHG emissions.	
Include a list of prioritized vulnerabilities based on the vulnerability assessment and the IRWM's decision making process.	Section P.10	This section provides a list of prioritized vulnerabilities by Sub-Region.	
Contain a plan, program, or methodology for further data gathering and analysis of prioritized vulnerabilities	Section P.12	This Section summarizes the highlights of the current and future data collection and monitoring process.	
Include climate change as part of the project review process	Section G, Table G-3 Section P13.3, Table P-9	This section provides a climate change ranking based on relative levels of adaption and mitigation.	

* Requirement must be addressed.

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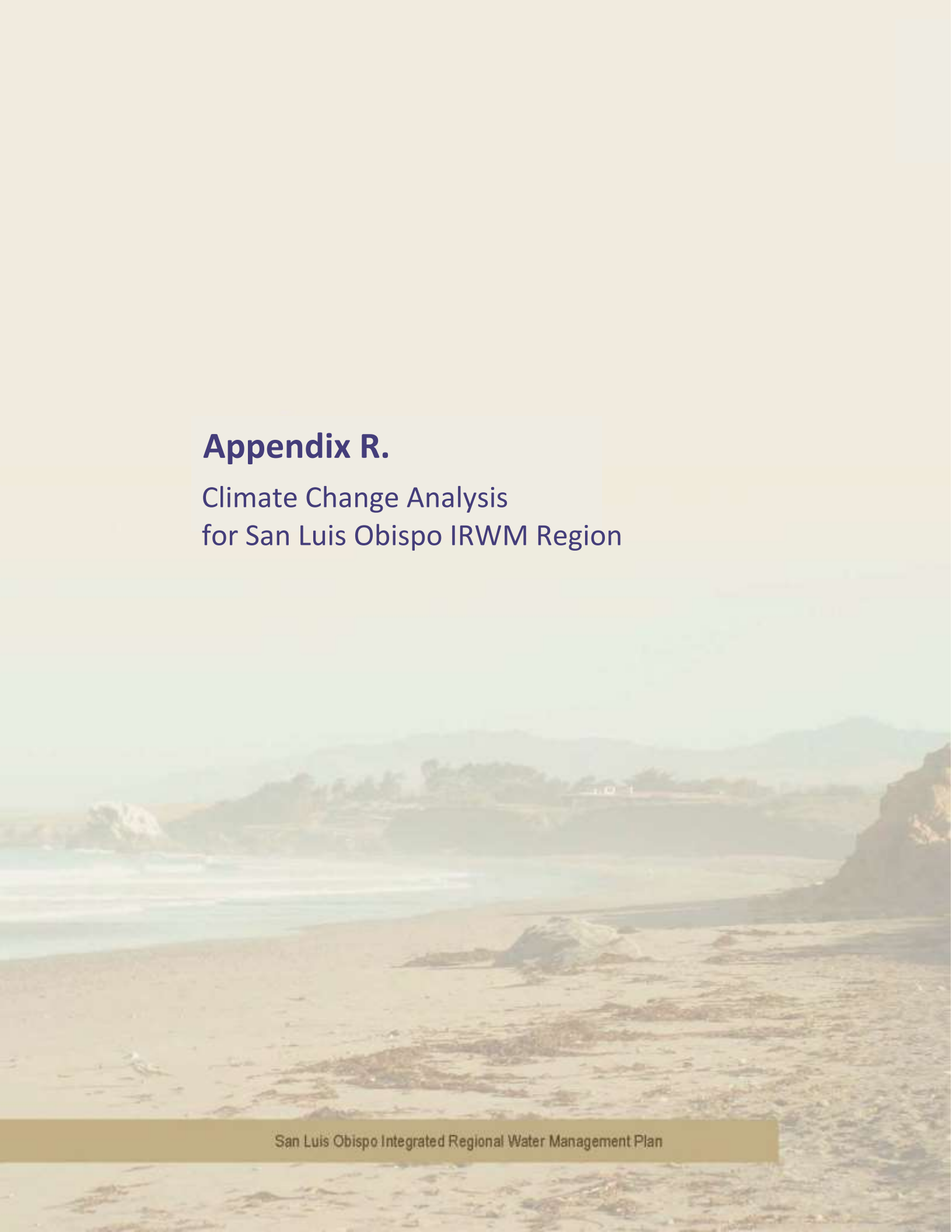
Appendix R.

Climate Change Analysis for San Luis Obispo IRWM Region



Appendix R. Climate Change Reports

Note: The attached are the raw Climate Change scientific papers used for developing Section P. Climate Change. These documents provide scientific validity and are not intended for understanding the full requirements of addressing Climate Change as part of the IRWM Plan development .

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Appendix R. Climate Change Report

R.1 CLIMATE CHANGE

This chapter presents an overview of the projected change in climate in the sub regions of the San Luis Obispo County. The vulnerabilities that arise from the projected change in the region have also been addressed.

R.2 CLIMATE PROJECTIONS

Global Climate simulations of future climate have been developed under the Coupled Model Inter-comparison Project Phase (CMIP3) conducted by the World Climate Research Programme (WCRP). To evaluate regional climate these datasets need to be downscaled to be applicable to smaller regions. The Lawrence Livermore National Labs (LLNL) hosts such an archive of the simulations from Global Climate models which is downscaled to a smaller region and bias-corrected. For this analysis, simulations from NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) model runs for the emissions scenario A1B were used. Emission scenarios are associated with varied levels of future socio-economic technological, and energy use developments prepared by the Intergovernmental Panel on Climate change (IPCC). A range of such scenarios has been published in the Special Report on Emissions Scenarios (SRES, 2000). The A1B scenario is a medium emissions scenario which envisions a globalized world with emphasis on rapid economic development and spread of ideas and technologies and a balance between use of fossil fuels and renewable energy.

Change analysis for the three sub-regions in the San Luis Obispo County was conducted for mid-century using historical and future monthly datasets for periods of equal length. The 40 year window of the time series used in the monthly analysis for historical data is 1971-2010 and the future time window for the projections is 2011-2050 which includes both the IRWMP planning horizon and mid-century (2050). Daily simulations for mid-century climate projections are available only between the time window of 2046-2065 and corresponding historical daily simulations are available through 1979-1999. The daily data spanning a 20-year period was used to determine the change in annual degree day indices in each of the regions.

Changes between historical and future GCM simulation results are summarized for precipitation, maximum temperature, minimum temperature, wind speed, evapotranspiration

and runoff. Average annual change in growing degree days[1], heating degree days, cooling degree days, and days with precipitation more than 1 inch are presented. Table 1 : Projected Changes in Monthly Climate Metrics for San Luis Obispo by Mid-Century (2050) summarizes the seasonal changes projected using monthly analysis for the climate variables. These changes are obtained by analyzing the monthly data simulated by NOAA's GFDL model. In the table, the cells with green backgrounds indicate increase of 3 percent or more, red backgrounds indicate decreases of 3 percent or more and white backgrounds indicate no appreciable change.

[1] The term "degree days" refers to the change….

Table 1 : Projected Changes in Monthly Climate Metrics for San Luis Obispo by Mid-Century (2050)

Variable		Change in variables projected by GFDL				
		Medium Warming (A1B)				
		Winter	Spring	Summer	Fall	Annual
Precipitation	North Coast	7.2%	-26.2%	-38.5%	3.2%	-3.66%
	South County	7.0%	-27.5%	-32.5%	0.9%	-5.02%
	North County	6.9%	-27.2%	-41.0%	-1.4%	-5.15%
Maximum Temperature	North Coast	6.5%	4.2%	5.8%	5.6%	5.48%
	South County	6.6%	4.6%	6.1%	6.0%	5.81%
	North County	7.5%	4.5%	5.0%	5.9%	5.55%
Minimum Temperature	North Coast	18.8%	13.5%	9.8%	17.0%	13.91%
	South County	23.2%	14.1%	11.2%	18.8%	15.40%
	North County	49.9%	15.4%	12.1%	21.8%	17.76%
Wind Speed	North Coast	-0.1%	-1.8%	0.2%	1.2%	-0.25%
	South County	0.2%	-1.2%	-0.8%	0.7%	-0.32%
	North County	0.3%	-1.0%	-0.6%	0.8%	-0.21%
Evapotranspiration	North Coast	-3.6%	3.9%	7.0%	6.1%	4.79%
	South County	-1.8%	3.8%	7.1%	6.0%	4.90%
	North County	-4.0%	4.6%	6.2%	5.2%	4.37%
Runoff	North Coast	15.7%	-27.8%	-3.3%	-1.4%	-3.47%
	South County	12.8%	-33.7%	-4.4%	1.7%	-8.78%
	North County	16.2%	-27.8%	-3.2%	-0.5%	-3.70%

Table 2 shows projected changes in climate daily metrics by mid-century (2050) using the NOAA GFDL model with increases shown in green while decreases are shown in red backgrounds. Cells with white backgrounds indicate no change.

Table 2: Projected Changes in Daily Climate Metrics for San Luis Obispo by Mid-Century (2050)

Variable		Change in variables projected by GFDL Medium Emissions (A1B)			
		Winter	Spring	Summer	Fall
Growing Degree Days	North Coast	148.84	239.77	435.81	303.29
	South County	150.04	240.46	423.37	283.37
	North County	147.33	249.11	363.65	283.60
Heating Degree Days	North Coast	-288.00	-337.35	-214.49	-279.32
	South County	-296.08	-338.93	-190.82	-264.11
	North County	-306.75	-311.36	-48.87	-244.22
Cooling Degree Days	North Coast	0.00	0.00	1.16	0.37
	South County	0.00	0.05	1.51	0.41
	North County	0.00	0.69	80.83	10.44
Days with Precipitation exceeding 1 inch	North Coast	-0.40	-0.05	0.00	0.15
	South County	-0.50	-0.15	0.00	0.10
	North County	-0.15	0.05	0.00	0.05

Table 3: Comparison of projected changes observed in the Change Analysis for each region

North Coast

- Increase in winter precipitation up to 7% and decreases in dry season precipitation up to 38% indicating shift in precipitation cycles
- Increases by 4% to 6% in maximum temperatures throughout the year (in degree Celsius) indicating overall increase in warming patterns
- Increases by 9% to 18% in minimum temperatures throughout the year (in degree Celsius) indicating warmer night time temperatures
- Increases in runoff in the winter by 15% and decreased runoff in the dry seasons up to 27% indicating shift in runoff patterns
- Increases up to 7% expected in evapotranspiration in all seasons except winter where a decrease up to 3% is projected
- Minor changes in wind speeds ranging from increases up to 1% and decreases up to 2%
- Significant decreases in heating requirements (heating degree days) through all the

seasons due to higher temperatures and minor increases in cooling requirements (cooling degree days) in summer and fall
- Increases in ambient growing temperatures (growing degree days) for plants in all seasons altering their water requirements
- Slight change in the number of precipitation events in winter and spring with less than one reduced extreme precipitation in a year and minor increases of less than one more precipitation event every year in fall

South County

- Increase in winter precipitation up to 7% and decreases in dry season precipitation up to 32% indicating shift in precipitation cycles
- Increases by 4% to 6% in maximum temperatures throughout the year (in degree Celsius) indicating overall increase in warming patterns.
- Increases by 11% to 23% in minimum temperatures throughout the year (in degree Celsius) indicating warmer night time temperatures
- Increases in runoff in the winter by 12% and decreased runoff in the dry seasons up to 33% indicating shift in runoff patterns
- Increases up to 7% expected in evapotranspiration in all seasons except winter
- Minor changes in wind speeds ranging from increases of less than 1% and decreases up to 1%
- Significant decreases in heating requirements (heating degree days) through all the seasons due to higher temperatures and minor increases in cooling requirements (cooling degree days) in spring, summer and fall
- Increases in ambient growing temperatures (growing degree days) for plants in all seasons altering their water requirements
- Slight change in the number of precipitation events in winter and spring with less than one reduced extreme precipitation in a year and minor increases of less than one more precipitation event every year in fall

North County

- Increase in winter precipitation up to 7% and decreases in dry season precipitation up to 41% indicating shift in precipitation cycles
- Increases by 4% to 7% in maximum temperatures throughout the year (in degree Celsius) indicating overall increase in warming patterns.
- Increases by 12% to 49% in minimum temperatures throughout the year (in degree Celsius) indicating warmer night time temperatures. This region has below freezing winter temperatures the hence the change values are sensitive to small changes in temperatures
- Increases in runoff in the winter by 16% and decreased runoff in the dry seasons up to 27% indicating shift in runoff patterns
- Increases up to 6% expected in evapotranspiration in all seasons except winter where a decrease up to 4% is projected
- Minor changes in wind speeds ranging from increases of less than 1% and decreases

up to 1%

- Significant decreases in heating requirements (heating degree days) through all the seasons due to higher temperatures and minor increases in cooling requirements (cooling degree days) in spring, summer and fall
- Increases in ambient growing temperatures (growing degree days) for plants in all seasons altering their water requirements
- Slight change in the number of precipitation events in winter with less than one reduced extreme precipitation in a year and minor increases of less than one more precipitation event every year in fall and spring

R.3 SEA LEVEL RISE

Sea level Rise is not completely understood and hence different approaches are used to estimate the rise at different geographic scales. The projected rise in sea level estimated by various studies using different approaches is presented below

Scale	Emissions Scenario	Projected Rise	Period	Climate Model	Data Source
Mid-Century					
Port San Luis	Historical	0.011-0.047m	2050	Extrapolation of Historical Trend	NOAA
California	Historical	0.15m	Mid-century	Extrapolation of Historical Trend	California DWR
California	Multi-Scenario	0.24 - 0.31m	Mid-century	Semi Empirical (Rahmstorf's) Approach	California DWR
California	Multi-Scenario	0.087 - 0.095m	2020 - 2049	PCM	Journal Publication
California	Multi-Scenario	0.116 - 0.127m	2020 - 2049	HadCM3	Journal Publication
California	Multi-Scenario	0.04 - 0.3m	2030	Multi-model Ensemble	National Academy
California	Multi-Scenario	0.12 - 0.6m	2050	Multi-model Ensemble	National Academy
Global	A1B	0.063 - 0.284 m	2050	Multi-model Ensemble	IPCC
Late-Century					
California	Multi-Scenario	0.54 - 0.94m	End-Century	Semi empirical (Rahmstorf's) Approach	California DWR
California	Multi-Scenario	0.192 - 0.288m	2070 - 2099	PCM	Journal Publication
California	Multi-Scenario	0.268 - 0.409m	2070 - 2099	HadCM3	Journal Publication
California	Multi-Scenario	0.42 - 1.67m	2100	Multi-model Ensemble	National Academy
Global	A1B	0.21 - 0.45 m	2090 - 2099	Multi-model Ensemble	IPCC

R.4 FLOODING DUE TO EXTREME PRECIPITATION EVENTS

Projected changes in flooding due to increased intensity of precipitation events indicate a relatively smaller threat in the region and global climate models present uncertainty in the nature of this change. However, this analysis does not take into consideration the effects of the 'Pineapple express' storms as the current global simulation models do not incorporate the physics of the event. This analysis should be updated for these events when the data is available.

R.5 IMPORTED WATER SUPPLY

Vulnerability Identification and Prioritization

Rating	North Coast	South County	North County
Priority 1	• Inadequate storage capacity • Saltwater intrusion and Coastal Inundation	• Decreased Water Supply • Saltwater intrusion and Coastal Inundation	• Decreased Water Supply • Increased Water Demands
Priority 2	• Ecosystems and Habitats • Water Quality	• Increased Water Demands • Water Quality • Ecosystems and Habitats	• Water Quality • Ecosystems and Habitats
Priority 3	• Increased Water Demands • Flooding	• Flooding	• Flooding

<u>North Coast</u>

Inadequate Storage Capacity: Priority Rating 1

- The indicated shift in precipitation from the dry seasons- summer and spring to wetter seasons- fall and winter implies that greater volume of water will need to be stored in the wetter seasons (fall and winter) to last through the dry seasons (summer and spring). However the aquifers have inadequate holding capacity which would be unable to house all the precipitation occurring earlier in the seasons to last through the drier months of the year. Lower holding capacity of aquifers in conjunction with the expected reduction in annual precipitation would exacerbate water supply issues
- Region is dependent on coastal aquifers and surface water and minor dependency on State Water and Desalination in City of Morro Bay
- Ground water aquifers in the region not resilient to droughts and their water holding capacity limits the water that can be stored in years of available surplus and lower levels make them susceptible to saltwater intrusion
- As this is the coastal region , saltwater intrusion into estuaries and creeks is also a

threat thus reducing the supply of portable water
- Drier spring and summers would result in need for more storage capacity of water to improve resilience last through the dry seasons
- With reduced precipitation in spring, surface waters are likely to become unreliable in the dry seasons. Perennial surface water sources such as the Pico creek in the region are sustained by the base flow and are likely to be depleted water supplies in the aquifers.
- Reliability of State Water Project is expected to reduce in the future and hence Morro Bay would be vulnerable to reduced supplies
- Due to low storage capacity of the aquifers, the increased precipitation in the wetter months would become runoff and travel downstream to the ocean
- The Whale Rock Reservoir which supplies water to some parts of the North Coast would also be posed with similar challenges in storage of water due to shift in the precipitation cycle

Saltwater intrusion and Coastal Inundation: Priority Rating 1

- The Ghyben-Herzberg principle which governs saltwater-freshwater relationships in coastal aquifers states that for each unit that freshwater level drops below sea level, the saltwater-freshwater interface will rise by 40 units. The region has about 10-12 coastal aquifers such as the Toro Valley, Santa Rosa Valley and the Villa Valley basins the that serve as local water supplies. Rise in sea level would lead to salt water intrusion, impairing their quality thus reducing the water available for use
- Mitigation of effects of sea level rise will partially address water quality issues, ecosystem concerns relating to coastal habitats in the region
- Critical coastal infrastructure such as Highway 1 and communities such as Cambria and San Simeon Acres, areas around Port Luis and Morro Bay are vulnerable to flooding due to rise in sea levels especially during coastal storms

Ecosystems and Habitat: Priority Rating 2

- Loss of species at higher elevations such as needle-leaf forests is expected as temperature and precipitation patterns change
- With changes in climate, most species are expected to migrate to higher elevations or Northward to find habitats conducive to their growth
- Wetlands and ecosystems are at great risk in parts of the County where they are already constricted due to urban development such as the ecosystems in the Morro Bay regions
- Higher water temperatures would affect cold water aquatic habitats
- This region has many estuaries flowing to the ocean and saltwater intrusion upstream into the estuaries will interfere with conditions required for ecosystems along thriving in habitats along the confluences of the ocean and the estuaries

Water Quality: Priority Rating 2

- The region is prone to wildfires and change in temperatures and precipitation with drier seasons. Increased wildfires occur close to water bodies or streams, the burnt

remnants of the fires are transported into the water thus deteriorating the quality of water there
- Water quality is also affected by the intrusion of salt water from the ocean into coastal aquifers and streams
- Low flows also lead to concentration of minerals and lower water quality
- Increased temperatures will also lead to increased water surface temperatures. Higher water surface temperatures are associated with poor water quality.
- There is not enough literature on the effects of increased temperatures on groundwater, however changes in solubility of geochemicals would affect water quality

Increased Water Demand: Priority Rating 3

- Increased temperatures are responsible for change in water consumption for agriculture due to changed growing cycles and increased evapotranspiration.
- The Los Osos Community would face increased demands in water for agriculture due to increased evapotranspiration in spring, summer and fall. Adjustments in water budget in this community would be required in response to changing cropping needs in the area
- The Agriculture industry is not dominant in the rest of the region and hence changes in water demand due to effect of increased temperatures on agriculture can be expected to be negligible
- However, plant growth is conducive to warmer temperatures, and as the climate in the region gets warmer, a potential growth in agriculture can be expected especially for growing winter crops.
- Population growth in the region has been constrained by the already existing resources.
- Growth moratoriums are in effect in communities such as Cambria
- Communities in the region follow conservation measures proposed in their UWMP which achieve reduction in water demands typically up to 15%
- Despite the restrained growth in the region, the water demands of the already existing communities can be expected to increase. This increase will be a result of increased evapotranspiration which would increase the domestic use of water used for watering lawns.
- One stressor for increased demand during dry seasons would be low flow in stream requirements to support aquatic habitats
- Reduced spring precipitation and runoff would skew the water demands, however this skew would be a result of the reduction in supply and not an increase in demand
- Addressing the issue of water supply during the dry seasons would work towards restoring the balance between demand and supply in the region

Flooding: Priority Rating 3

- The coastline of the North Coast Region lays in the FEMA 100 yr Effective floodplain. With shift in precipitation and increase in runoff in the winter season, the region will

be vulnerable to floods

South County

Decreased Water Supply: Priority Rating 1

- Projections of precipitation indicate decrease in the average annual precipitation and a shift in the precipitation patterns with more precipitation occurring in winter and reduced precipitation in spring and summer. These conditions will pose water supply challenges similar to that in the North Coast.
- The shift in precipitation patterns towards the winter months coupled with an overall projected annual reduction in precipitation would require water to be stored for the drier spring and summers.
- Part of the region overlies the adjudicated Santa Maria Basin thus limiting the amount of water that can be supplied from the basin in turn increasing the dependence of the region on surface waters.
- Adjudication may be required for the smaller coastal aquifers such as the Avila Valley Sub-basin and Pismo Creek Valley Sub-basin which will become susceptible to saltwater intrusion
- Water sources in the region include groundwater , State water Project, Lopez Reservoir, Whale Rock Reservoir, Nacimiento Water Project and the Salinas Reservoir
- The region's dependency on the State Water Project which is projected to become unreliable in the future thus straining the local water supplies
- The overall reduction in precipitation in the region would result in less reliable surface water supply especially in the drier months

Coastal Inundation: Priority Rating 1

- The South County houses recreational beaches like the Pismo beach and the Avila beach and also the San Luis Port. These locations are economically important to the region. These locations are vulnerable to coastal inundation with rise in sea levels and need to be monitored for erosion and also preservation of ecosystem around the region
- The Diablo Nuclear Power Plant is also located along the coast of the South County and is vulnerable to coastal inundation as a result of sea level rise and storm surges
- In addition to coastal habitat, sea-level rise is a huge threat to coastal aquifers. The Ghyben-Herzberg principle which governs saltwater-freshwater relationships in coastal aquifers states that for each unit that freshwater level drops below sea level, the saltwater-freshwater interface will rise by 40 units. Increased vulnerabilities to saltwater intrusion due to sea level rise can be expected in the coastal aquifers like the Pismo Creek Valley sub-basin and the Avila valley sub-basin.
- Highway 1 runs along the coast of the South County and is also vulnerable to flooding due to sea level rise especially during coastal storms. Highway drains could transport this salt water to local streams affecting water quality.

Water Demand: Priority Rating 2

- The region has some agriculture consumers in the Arroyo Grande area and around the Lopez Lake Region and smaller pockets of the agriculture industry exist in the rest of the South County. The projected increases in temperature will increase the number of Growing degree days will affect the cropping patterns and crop water requirements
- With increase in the summer temperatures, power plants will require more water in their cooling processes
- Increases in evapotranspiration would result in increased use of water for agriculture as well as increases in outdoor domestic uses.
- Increased temperatures of water are likely to result in increases in cooling of water required for the Diablo Canyon Nuclear plant
- Small oil fields are located in the San Luis Obispo Region. Petroleum Refineries require water for cooling in their processes, increased surface water temperatures would result in larger requirements for water.
- Projected increases in wildfires due to drier conditions would lead to increases in the water required for fighting wildfires
- Reduced summer runoff will make it difficult to meet instream flow requirements

Water Quality: Priority Rating 2

- Increases in water temperatures in winter will interfere with the mixing cycles of water in large water bodies such as the Lopez Lake affecting water quality
- Increase in wildfires due to drier conditions around the Lopez Reservoir will be detrimental to the water quality in the lake
- Saltwater intrusion in coastal aquifers is also a threat to the water quality
- Lower water table levels in aquifers can also increase the concentration of nitrates and sulfates and total dissolved solids in the water
- Increase in water temperatures will result in reduction of dissolved oxygen in water bodies leading to poor water quality

Ecosystems and Habitats: Priority Rating 2

- Ecosystems already under pressure due to urban development will face increased pressure with rising sea levels.
- Beach erosion is also a threat with rising sea levels in the region
- Sea Lions are known to be susceptible to poor water quality and higher water temperatures that could occur along the coast (GEOS Institute)
- Saltwater could also affect the Willow habitats in the region (GEOS Institute)

Flooding: Priority Rating 3

- The coastline along the South Coast and some inland areas around Pismo beach are situated in the FEMA 100 yr Effective floodplain areas. Shift in the precipitation cycle to winter and, increased runoff is likely to make them more susceptible flooding.

North County

Water Supply: Priority Rating 1

- The region heavily relies on groundwater. The Paso Robles Basin, Atascadero Basin, Pozo Valley Basin and Carrizo Basin are the larger groundwater basins in the region. The groundwater levels in these basins are already declining and are a persistent issue in the region.
- An overall decrease in precipitation has been projected in the North County. This would reduce the total water from precipitation that can be stored exacerbating the decline in the groundwater levels.
- A shift is projected in the precipitation cycle with the bulk of precipitation occurring in winter. Significant decrease in precipitation is projected in the spring and summer seasons making them drier than usual.
- Subsequently, the concentration of runoff has been projected to shift to winter. This shift would necessitate capturing all the additional runoff in the winter through groundwater and surface water storage to make water last through the drier seasons.
- The San Luis Obispo Region has a 25000 AFY contract with the State Water Project and currently does not use the complete deliveries by the State Water Project. The excess water has been identified as an option for long term storage and banking. However, deliveries from the State Water Project are projected to decline and become unreliable in the future.
- Thus, it would be necessary to harness the local surface water for long term storage in aquifers.

Water Demand: Priority Rating 1

- Agriculture is a major industry in the region and accounts for most of the water consumption in the region. Warmer temperatures are known to affect the growth cycles in crops. Increased temperature is likely to cause a shift in the cropping patterns and subsequently increase water demands in the region.
- Fruits crops such as strawberries and wine grapes account for more than 40% of the agricultural revenue in the region. Such crops are micro climate crops and slight changes in the ambient conditions can lead to change in the quality and quantity of the produce.
- Drier springs, longer summers with average temperatures up to 71˚F and warmer night time temperatures are conducive for the growth of quality grape vines. The wine production in the region has increased in recent years and is likely to increase with the climate becoming more conducive to growing grapes. Increasing temperatures are known to affect the quality of crops, a factor likely to affect crop selection. Hence, there exists an uncertainty in the extent of change in water demands as a result of changing crop selection
- Increased evapotranspiration would lead in increased water demands for agriculture
- Increased evapotranspiration and increased temperatures would also lead to increased water demands for domestic use in urban and rural areas.
- Increased surface temperatures would require increased water for cooling in oil refineries in the region

- Proposed solar farms projects would also require an annual allotment of water for cooling stressing the water demand in the region
- Increase in wildfires will also result require increased water allotments to douse fires.

Water Quality: Priority Rating 2

- The groundwater basins in the region have problems of declining water table levels and safe yields. An overall reduction in precipitation and, potential decline in water table levels will lead to increased dissolved solids in the water and concentration of minerals. These problems would exacerbate in the drier months due to shift in precipitation towards winter.
- The potential increase in agriculture in the region would also lead to increase in use of pesticides and fertilizers. The chemicals and nutrients from these are likely to leach into the groundwater along with the return flow and deteriorate water quality
- Wildfires are projected to increase in the region due to drier conditions and warmer temperatures. Post-wildfire impacts include the compromise in the water quality. Mudslides occurring from the water used to douse the fire and from precipitation would increase sediment load in water. Burnt residue mixing with water sources would increase chemical concentrations of streams also affecting water quality.
- Increased runoff in winter would increase the sediment load in the surface water during winter and impact water quality.

Ecosystems and Habitats: Priority Rating 2

- Projected increases in wildfires would adversely affect ecosystems
- Changing climate would lead to flora and fauna migrating North ward or to higher altitudes to reach habitats conducive to their growth.
- Soda lake houses unique habitat in the Carrizo Basin and changes in the precipitation regime in the region could disrupt the ecosystems around the lake

Flooding: Priority Rating 3

- The Carrizo Basin and the regions around the rivers all lay in the FEMA 100 yr Effective flood plain. Increased precipitation and runoff in the winter season makes these regions vulnerable to flooding

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R.6 PROJECT RATINGS BASED ON CLIMATE CHANGE

The proposed projects have been rated based on two criteria -

1. Potential of adaptation to the projected effects of climate change in the region
2. Potential of reducing greenhouse gas emissions due to water related activities

R.7 ADAPTATION ANALYSIS

The potential for adaptation of each project has been analyzed based on its ability to address the regions' projected vulnerabilities. In the climate change analysis section (Section H), projected changes in the climate variables have been associated to vulnerabilities related to water resources in each respective sub-region. The vulnerabilities identified are – Decreased Water Supply, Saltwater intrusion and Coastal Inundation, Ecosystem and Habitats, Water Quality, Increased Water Demands, Flooding. Table H-7 indicates the prioritized vulnerabilities for each region. Proposed projects have been scored based on the vulnerabilities alleviated by them. Vulnerabilities alleviated by the project contribute points based on the Table 1 towards a cumulative score for the project. The projects are then categorized into 'High Adaptation Potential', 'Medium Adaptation Potential' and 'Low Adaptation Potential' categories.

Table R-1. Table 4: Point chart for each vulnerability alleviated for all sub-regions

Vulnerability	North Coast	South County	North County
Supply Benefits	3	3	3
Prevention of Saltwater Intrusion and Coastal Inundation	3	3	
Enhancement or Conservation of Groundwater	2	2	2
Improving Water Quality	2	2	2
Demand Reduction	1	2	3
Benefits to the Ecosystem & Habitat	2	2	2
Flood management	1	1	1

R.8 MITIGATION ANALYSIS

The mitigation potential of projects has been analyzed by examining the energy intensive activities involved and averted by the project. Electricity is required to pump, treat, distribute

and recycle water and wastewater. During the process of generating this electricity, burning of fossil fuels leads to emission of greenhouse gases. These emissions can indirectly be associated with the energy expended for the water-related activities. Water savings or excess water needs from all of the proposed projects cannot be quantified. The emissions factors for energy generation also vary from facility to facility. Hence, the projects have been qualitatively compared for their potential of emissions reduction. Table 2 presents a baseline of emissions typically associated with water related activities. A California wide emissions factor of 0.492859 lbs/kWh (Emission factor obtained from the San Luis Obispo County Climate Action Plan Appendix A) has been used to estimate the emissions associated with every water intensive activity. To rate the projects for their emissions reduction potential, the change in emissions due to water related activities in case of implementation of every project has been categorized into "Positive", "Neutral" & "Negative".

Table R-2. Table 5: Baseline Emissions from water related activities per AF

Activity	Energy intensity (in kWh/AF)	Associated Emissions (in lbs of CO_2e/AF)	Regional Extent	Source
Groundwater Pumping	450	221	Central Coast (Average between 1999-2005)	Embedded Energy in Water Studies- Study 1
Recycling	1129	556	Statewide	Embedded Energy in Water Studies- Study 1
Water Distribution	1000	493	Statewide	Embedded Energy in Water Studies- Study 1
Water Treatment	312	154	Statewide	Embedded Energy in Water Studies- Study 1
Desalination Brackish	1689	8324	Central Coast	Embedded Energy in Water Studies- Study 1
Desalination Sea Water	4000	19714	Central Coast	Embedded Energy in Water Studies- Study 1
Wastewater treatment	2012	992	Statewide	Embedded Energy in Water Studies- Study 1

R.8.2 Ranking Projects on Climate Change

The adaptation and mitigation potential of each of the project is then used to Rank the projects from 1-5. Projects with the highest adaptation potential and a positive mitigation potential have been ranked 1 and projects with low adaptation potential and negative mitigation potential have been ranked the lowest. Table 3 shows the summary of the analysis.

Table 6: Project Rankings

Project ID	Relative Adaptation Potential	Relative Mitigation Potential	Climate Change Rank
MLTP_ECO1	LOW	Positive	4
MLTP_WMT2	HIGH	Positive	1
NCNT_ECO1	LOW	Positive	4
NCNT_ECO2	MEDIUM	Positive	2
NCNT_GWM1	MEDIUM	Negative	3
NCNT_WMT1	MEDIUM	Neutral	2
NCNT_WMT2	LOW	Positive	4
NCNT_WSP1	MEDIUM	Negative	3
NCNT_WSP2	LOW	Negative	5
NCST_GWM1	HIGH	Negative	2
NCST_FLD1	HIGH	Positive	1
SCNT_FLD2	MEDIUM	Positive	2
SCNT_WMT1	MEDIUM	Negative	3
SCNT_WSP2	LOW	Negative	5
SCNT_WSP4	LOW	Negative	5

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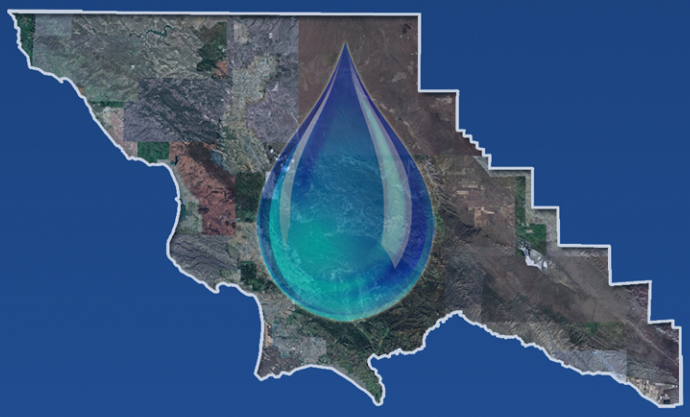
Appendix S.

2012 Master Water Report



San Luis Obispo County
Master Water Report
Volume I of III

MAY 2012

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SAN LUIS OBISPO COUNTY MASTER WATER REPORT

May 2012

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San Luis Obispo County Flood Control and Water Conservation District

SAN LUIS OBISPO COUNTY MASTER WATER REPORT

TABLE OF CONTENTS

Page No.

EXECUTIVE SUMMARY - MASTER WATER REPORT

ES.1 SUMMARY OF REPORT CHAPTERS....1
ES.2 MASTER WATER REPORT RECOMMENDATIONS....2
ES.2.1 District's Highest Priorities....2
ES.2.2 Water Management Strategies for Specific Users....3

CHAPTER 1 - INTRODUCTION

1.1 SCOPE OF MASTER WATER REPORT....1-1
1.2 GOALS AND OBJECTIVES....1-3
1.2.1 Ensure Stakeholder Input/Participation....1-3
1.2.2 Create a Framework for Maintaining the Master Water Report....1-3
1.2.3 Accurately Present Current and Future Supply/Demand....1-5
1.2.4 Ensure Support for Agricultural Demand Analysis....1-5
1.2.5 Ensure Support for Environmental Water Demand Characterization....1-5
1.2.6 Respect Autonomy of Individual Jurisdictions while Recognizing Differences/Conflicts....1-5
1.2.7 Present Analysis of Options, Conclusions and Recommendations....1-6
1.2.8 Ensure Compatibility with Other Documents....1-6
1.3 LIMITATIONS OF THE MASTER WATER REPORT....1-6
1.3.1 Technical Challenges with Demand Assessment....1-7
1.3.1.1 Urban Water Demand....1-7
1.3.1.2 Rural Water Demand....1-7
1.3.1.3 Agricultural Water Demand....1-7
1.3.1.4 Definition of "Build-Out" Demand....1-8
1.3.1.5 Conservation and Irrigation Efficiencies....1-8
1.3.2 Use of Available Technical Documents....1-8
1.3.3 Groundwater Basin Yield Estimates....1-9
1.3.4 Use of Management Area Reports....1-9
1.3.5 Technical Challenges with Environmental Assessment....1-9
1.4 DEFINITION OF KEY TERMS....1-10

CHAPTER 2 - PART I: BACKGROUND ON WATER RESOURCE MANAGEMENT EFFORT

2.1 WATER PLANNING AREAS....2-1
2.1.1 North Coast Sub-Region....2-1
2.1.1.1 San Simeon WPA 1....2-1
2.1.1.2 Cambria WPA 2....2-3
2.1.1.3 Cayucos WPA 3....2-3
2.1.1.4 Morro Bay WPA 4....2-3
2.1.1.5 Los Osos WPA 5....2-3
2.1.2 South Coast Sub-Region....2-3
2.1.2.1 San Luis Obispo/Avila WPA 6....2-5

2.1.2.2 South Coast WPA 7 2-5
2.1.2.3 Huasna Valley WPA 8 2-5
2.1.2.4 Cuyama Valley WPA 9 2-5
2.1.3 Inland Sub-Region 2-6
2.1.3.1 Carrizo Plain WPA 10 2-6
2.1.3.2 Rafael/Big Spring WPA 11 2-6
2.1.3.3 Santa Margarita WPA 12 2-6
2.1.3.4 Atascadero/Templeton WPA 13 2-6
2.1.3.5 Salinas/Estrella WPA 14 2-8
2.1.3.6 Cholame WPA 15 2-8
2.1.3.7 Nacimiento WPA 16 2-8
2.2 WATER SERVICE COOPERATIVE AGREEMENTS AND OTHER COORDINATION EFFORTS 2-8
2.2.1 WPA 3, 4 and 6 – Whale Rock Reservoir Water Supply 2-9
2.2.2 WPA 4 - City of Morro Bay/Whale Rock Commission 2-9
2.2.3 WPA 4 - Chorro Valley Water System 2-9
2.2.4 WPA 4, 6, 7, and 14 -State Water Project 2-10
2.2.5 WPA 5 – Los Osos Interlocutory Stipulated Judgment (ISJ) 2-10
2.2.6 WPA 6 – Santa Margarita Lake/Salinas Reservoir 2-11
2.2.7 WPA 7 – Groundwater Management Agreement/Northern Cities Management Area 2-11
2.2.8 WPA 6 and 7 – Lopez Lake Zone 3 Water Supply Project 2-12
2.2.9 WPA 7 – Nipomo Mesa Management Area 2-12
2.2.10 WPA 4, 6, 13 and 14 - Nacimiento Water Supply Project 2-13
2.2.11 WPA 13 and 14 - Paso Robles Groundwater Management Plan and Basin Agreement 2-14
2.2.11.1 Paso Robles Groundwater Management Plan 2-14
2.2.11.2 Paso Robles Groundwater Basin Agreement 2-14
2.3 RESOURCE AGENCIES 2-15
2.3.1 State Agencies 2-15
2.3.2 Agricultural Organizations 2-16
2.3.3 Environmental Organizations 2-16

CHAPTER 3 - PART II: AVAILABLE DATA

3.1 OBJECTIVES 3-1
3.2 DATA COLLECTION EFFORTS OR PROGRAMS 3-1
3.2.1 Groundwater 3-1
3.2.1.1 Water levels 3-1
3.2.1.2 Geologic Data and Well Logs 3-5
3.2.2 Stream Flow 3-7
3.2.2.1 District Stream Measuring Program 3-10
3.2.2.2 U.S. Geological Survey Stream Gauging Program 3-10
3.2.3 Precipitation 3-12
3.2.3.1 District Recording Rain Gauge Program 3-12
3.2.3.2 District Volunteer Precipitation Program 3-16
3.2.3.3 District ALERT Rain Gauge Program 3-16
3.2.3.4 California Irrigation Management Information System (CIMIS) Stations 3-18
3.2.3.5 National Oceanic and Atmospheric Administration / National Weather Service Cooperative Observer Network 3-20
3.2.3.6 Citizen Weather Observer Program (CWOP) 3-20

3.2.3.7 Remote Automated Weather Station (RAWS) Gauges 3-23
3.2.3.8 NWS Automated Surface Observing System (ASOS) Stations .. 3-25
3.2.3.9 National Weather Service Precipitation Forecasts (QPF) 3-27
3.2.4 Reservoirs 3-30
3.2.4.1 Local Reservoir Operations 3-30
3.2.5 Water Quality 3-30
3.2.5.1 Sampling Surface Water 3-30
3.2.5.2 Streams, Lakes & Reservoirs 3-33
3.2.5.3 Estuaries and Wetlands 3-36
3.2.5.4 Oceans and Beaches 3-37
3.2.5.5 Sampling Groundwater 3-42
3.2.6 Unimpaired Runoff 3-47
3.2.7 Land Use 3-48
3.2.7.1 Urban Land Uses 3-48
3.2.7.2 Rural Land Uses 3-48
3.2.7.3 Agricultural Land Uses 3-49
3.2.8 Population 3-49
3.2.9 Water System Production and Consumption 3-49
3.2.9.1 Water Quantity/Quality 3-49
3.2.9.2 Water Use Data 3-50
3.2.10 Agriculture 3-50

CHAPTER 4 - PART II: WATER RESOURCE ANALYSIS

4.1 OBJECTIVES 4-1
4.2 OVERVIEW OF GROUNDWATER RESOURCES 4-1
4.2.1 North Coast Sub-Region 4-1
4.2.1.1 San Simeon Water Planning Area (WPA) 1 4-2
4.2.1.2 Cambria WPA 2 4-5
4.2.1.3 Cayucos WPA 3 4-9
4.2.1.4 Morro Bay WPA 4 4-14
4.2.1.5 Chorro Valley Groundwater Basin 4-16
4.2.1.6 Los Osos WPA 5 4-17
4.2.2 South Coast Sub-Region 4-19
4.2.2.1 San Luis Obispo/Avila WPA 6 4-20
4.2.2.2 South Coast WPA 7 4-24
4.2.2.3 Huasna Valley WPA 8 4-33
4.2.2.4 Cuyama Valley WPA 9 4-36
4.2.3 Inland Sub-Region 4-38
4.2.3.1 Carrizo Plain WPA 10 4-39
4.2.3.2 Rafael Valley/Big Spring WPA 11 4-42
4.2.3.3 Santa Margarita WPA 12 4-44
4.2.3.4 Atascadero/Templeton WPA 13 4-47
4.2.3.5 Salinas/Estrella WPA 14 4-50
4.2.3.6 Cholame Valley WPA 15 4-53
4.2.3.7 Nacimiento WPA 16 4-55
4.2.4 OTHER GROUNDWATER SUPPLY SOURCES 4-55
4.3 OVERVIEW OF SURFACE WATER SUPPLY 4-57
4.3.1 State Water Project 4-57
4.3.2 Nacimiento Water Project 4-61
4.3.3 Whale Rock Reservoir 4-62
4.3.3.1 Operating Agreements 4-63

4.3.4 Lopez Lake/Reservoir 4-65
4.3.5 Santa Margarita Lake/Salinas Reservoir 4-66
4.3.6 Chorro Reservoir 4-66
4.4 OTHER WATER SUPPLY SOURCES 4-67
4.4.1 Twitchell Reservoir 4-67
4.4.2 Desalination 4-67
4.4.2.1 Morro Bay Desalination 4-67
4.4.2.2 Other Desalination Projects 4-68
4.4.3 Water Recycling 4-68
4.5 WATER CONSERVATION PROGRAMS 4-69
4.5.1.1 Urban Water Management Plans: 4-70
4.5.1.2 Partners in Water Conservation: 4-71
4.5.1.3 Agricultural Water Conservation Programs 4-71
4.5.1.4 California Urban Water Conservation Council 4-72
4.5.1.5 Decentralized Water Supply Opportunities 4-73
4.6 WATER SUPPLY, DEMAND, WATER QUALITY 4-74
4.6.1 Total Water Demand 4-75
4.6.1.1 Method for Calculating Demand 4-75
4.6.1.2 Assumptions for Calculating Demand 4-75
4.6.1.3 Total Demand by WPA 4-76
4.6.2 Urban Water Demand 4-82
4.6.2.1 Sources of Information 4-82
4.6.2.2 Method/Assumptions: Existing Use and Future Water Demand 4-82
4.6.2.3 Urban Water Demand by WPA 4-82
4.6.3 Agricultural Water Demand 4-82
4.6.3.1 Sources of Information 4-83
4.6.3.2 Method/Assumptions: Existing Agricultural Demand 4-84
4.6.3.3 Method/Assumptions: Future Agricultural Demand 4-86
4.6.3.4 Agricultural Water Demand by WPA 4-88
4.6.4 Rural Water Demand 4-89
4.6.4.1 Sources of Information 4-89
4.6.4.2 Method/Assumptions: Existing and Future Rural Demand 4-89
4.6.4.3 Rural Water Demand by WPA 4-90
4.6.5 Environmental Demand 4-91
4.6.5.1 Definitions 4-91
4.6.5.2 Method/Assumptions: Environmental Demand 4-91
4.6.6 North Coast Sub-Region 4-92
4.6.6.1 San Simeon WPA 1 4-92
4.6.6.2 Cambria WPA 2 4-97
4.6.6.3 Cayucos WPA 3 4-101
4.6.6.4 Morro Bay WPA 4 4-105
4.6.6.5 Los Osos WPA 5 4-113
4.6.7 South Coast Sub-Region 4-118
4.6.7.1 San Luis Obispo/Avila WPA 6 4-118
4.6.7.2 South Coast WPA 7 4-128
4.6.7.3 Huasna Valley WPA 8 4-154
4.6.7.4 Urban Users 4-154
4.6.7.5 Cuyama Valley WPA 9 4-156
4.6.8 Inland Sub-Region 4-158
4.6.8.1 Carrizo Plain WPA 10 4-158

4.6.8.2 Rafael/Big Spring WPA 11 4-162
4.6.8.3 Santa Margarita WPA 12 4-164
4.6.8.4 Atascadero/Templeton WPA 13 4-169
4.6.8.5 Salinas/Estrella WPA 14 4-180
4.6.8.6 Cholame WPA 15 4-189
4.6.8.7 Nacimiento WPA 16 4-191
4.7 ANALYSIS CRITERIA 4-195
4.7.1 Criteria for Declaring a Water Resource Shortfall 4-195
4.7.2 Criteria for Evaluating and Ranking Water Resource Management Strategies (management, projects, programs, policies) 4-195
4.7.3 Water Management Strategies 4-196
4.7.3.1 Conservation Programs 4-196
4.7.3.2 Optimize Use of the Nacimiento Water Project (NWP) 4-197
4.7.3.3 Land Use Management 4-197
4.7.3.4 Recycled Water 4-198
4.7.3.5 Optimize Use of State Water Project (SWP) 4-198
4.7.3.6 Groundwater Banking/Recharge 4-198
4.7.3.7 Groundwater Supply Sources 4-199
4.7.3.8 Salinas Reservoir Expansion/Exchanges 4-199
4.7.3.9 Desalination 4-200
4.7.3.10 Lopez Lake Expansion/Exchanges 4-200
4.7.3.11 New Off-stream Storage 4-200
4.7.3.12 Nipomo Supplemental Water Project Optimization 4-201
4.7.3.13 Precipitation Enhancement 4-201
4.7.3.14 New On-stream Storage 4-201
4.7.4 Conservation Programs 4-202
4.7.4.1 Agriculture Conservation 4-202
4.7.4.2 Urban and Rural Water Use Efficiency 4-205
4.7.4.3 Economic Incentives 4-208
4.7.5 Optimize Use of the Nacimiento Water Project 4-211
4.7.5.1 Potential Benefits of Optimizing the use of the Nacimiento Water Project 4-211
4.7.5.2 Potential Cost of Optimizing the use of the Nacimiento Water Project 4-212
4.7.5.3 Major Issues Facing Optimization of the use of the Nacimiento Water Project 4-212
4.7.5.4 Recommendations to Optimize the use of the Nacimiento Water Project 4-213
4.7.6 Land Use Management 4-214
4.7.6.1 Potential Benefits from Land Use Management 4-216
4.7.6.2 Potential Cost of Land Use Management 4-217
4.7.6.3 Major Issues Facing Land Use Management 4-218
4.7.6.4 Recommendations for Implementation of Land Use Management 4-221
4.7.7 Recycled Water 4-223
4.7.7.1 Potential Benefits of Water Recycling 4-224
4.7.7.2 Potential Cost of Recycled Water 4-225
4.7.7.3 Major Issues Facing Water Recycling 4-225
4.7.7.4 Central Coast RWQCB Conditional Waiver 4-227
4.7.7.5 Recommendations to Increase Recycled Water Use 4-227
4.7.8 Optimize Use of State Water Project 4-228

4.7.8.1 Potential Benefits of Optimizing the Use of the State Water Project 4-229
4.7.8.2 Potential Cost of Optimizing the use of the State Water Project 4-229
4.7.8.3 Major Issues Facing Optimization of the use of the State Water Project 4-230
4.7.8.4 Recommendations to Optimize the use of the State Water Project 4-231
4.7.9 Groundwater Banking/Recharge 4-232
4.7.9.1 Potential Benefits of Groundwater Banking/ Recharge 4-233
4.7.9.2 Potential Costs of Groundwater Banking/Recharge 4-234
4.7.9.3 Major Issues Facing Groundwater Banking/ Recharge 4-234
4.7.9.4 Recommendations to Improve Groundwater Banking/ Recharge 4-235
4.7.10 Groundwater Supply Sources 4-236
4.7.10.1 Potential Benefits of using Groundwater Supply Sources 4-236
4.7.10.2 Potential Cost of Groundwater Supply Sources 4-236
4.7.10.3 Major Issues Facing the use of Groundwater Supply Sources . 4-236
4.7.10.4 Recommendations to Facilitate Management of Groundwater Supply Sources 4-236
4.7.11 Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.1 Potential Benefits of Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.2 Potential Cost of Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.3 Major Issues Facing Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.4 Recommendations to Facilitate Salinas Reservoir Expansion/Exchanges 4-238
4.7.12 Desalination 4-238
4.7.13 Lopez Lake Expansion/Exchanges 4-243
4.7.13.1 Potential Benefits of Lopez Reservoir Expansion/Exchanges .. 4-243
4.7.13.2 Potential Cost of Lopez Reservoir Expansion/Exchanges 4-243
4.7.13.3 Major Issues Facing Lopez Reservoir Expansion/Exchanges .. 4-244
4.7.13.4 Recommendations to Facilitate Lopez Reservoir Expansion/Exchanges 4-244
4.7.14 New Off Stream Storage 4-244
4.7.14.1 Potential Benefits of Off Stream Surface Storage 4-245
4.7.14.2 Potential Costs of New Off Stream Surface Storage 4-245
4.7.14.3 Major Issues Facing New Off Stream Storage 4-245
4.7.14.4 Recommendation to Increase Off Stream Surface Storage Benefits 4-246
4.7.15 Nipomo Supplemental Water Project 4-246
4.7.15.1 Potential Benefits of the Nipomo Supplemental Water Project. 4-247
4.7.15.2 Potential Cost of the Nipomo Supplemental Water Project 4-247
4.7.15.3 Major Issues Facing the Nipomo Supplemental Water Project. 4-247
4.7.15.4 Recommendations to Facilitate the Nipomo Supplemental Water Project 4-247
4.7.16 Precipitation Enhancement 4-247
4.7.16.1 Potential Benefits from Precipitation Enhancement 4-248
4.7.16.2 Potential Cost of Precipitation Enhancement 4-249
4.7.16.3 Major Issues for Precipitation Enhancement 4-249
4.7.16.4 Recommendations to Increase Precipitation Enhancement 4-250
4.7.17 New On Stream Storage 4-250

4.7.17.1 Potential Benefits of On Stream Surface Storage 4-251
4.7.17.2 Potential Costs of New On Stream Surface Storage 4-252
4.7.17.3 Major Issues Facing New On Stream Storage 4-252
4.7.17.4 Recommendation to Increase On Stream Surface Storage Benefits 4-253
4.8 SUMMARY ANALYSIS, CONCLUSIONS, RECOMMENDATIONS 4-253
4.8.1 Contingency Plan or Reliability Supply 4-253
4.8.1.1 City of San Luis Obispo Reliability Reserve 4-254
4.8.1.2 Reliability Supply Goal 4-256
4.8.2 Regional Water Supply Strategies 4-256
4.8.2.1 Interagency Arrangements and Exchanges 4-257
4.8.2.2 Chorro Valley Water System Connection to NWP 4-257
4.8.2.3 Santa Margarita Lake/Salinas Reservoir Release 4-257
4.8.3 Water Conservation 4-258
4.8.4 Groundwater Evaluations 4-258
4.8.5 Groundwater Banking/Recharge 4-259
4.8.6 Streamline Institutional Agreements 4-259
4.8.7 Improving Agriculture Demand Estimate 4-259
4.8.8 Improving Rural Demand Estimate 4-260
4.8.9 Agricultural and Rural Users Water Management Strategies 4-261
4.8.10 Environmental Water Management Strategy 4-262
4.8.11 Unsubscribed State Water Project 4-263
4.8.12 North Coast Sub-Region 4-263
4.8.12.1 San Simeon WPA 1 4-263
4.8.12.2 Cambria WPA 2 4-269
4.8.12.3 Cayucos WPA 3 4-272
4.8.12.4 Morro Bay WPA 4 4-275
4.8.12.5 Los Osos WPA 5 4-281
4.8.13 South Coast Sub-Region 4-285
4.8.13.1 San Luis Obispo/Avila WPA 6 4-285
4.8.13.2 South Coast WPA 7 4-290
4.8.13.3 Huasna Valley WPA 8 4-299
4.8.13.4 Cuyama Valley WPA 9 4-302
4.8.14 Inland Sub-Region 4-305
4.8.14.1 Carrizo Plain WPA 10 4-305
4.8.14.2 Rafael/Big Spring WPA 11 4-309
4.8.14.3 Santa Margarita WPA 12 4-312
4.8.14.4 Atascadero/Templeton WPA 13 4-316
4.8.14.5 Salinas/Estrella WPA 14 4-322
4.8.14.6 Cholame WPA 15 4-328
4.8.14.7 Nacimiento WPA 16 4-331

CHAPTER 5 - PART III: WATER RESOURCE PLANNING

5.1 RELATIONSHIP OF MASTER WATER REPORT TO EXISTING DOCUMENTS 5-1
5.1.1 California Water Plan 5-1
5.1.1.1 Description 5-1
5.1.1.2 Relationship to Master Water Report (MWR) 5-1
5.1.1.3 Timing 5-1
5.1.1.4 Issues Related to Coordination 5-2
5.1.1.5 Recommendations for Coordination 5-2

5.1.2 Integrated Regional Water Management Plan 5-2
5.1.2.1 Description 5-2
5.1.2.2 Relationship to MWR 5-2
5.1.2.3 Timing 5-3
5.1.2.4 Issues related to coordination 5-3
5.1.2.5 Recommendations for coordination 5-3
5.1.3 County General Plan 5-3
5.1.3.1 Conservation and Open Space Element 5-3
5.1.3.2 Land Use and Circulation Element 5-5
5.1.3.3 County Resource Management System 5-6
5.1.3.4 Agricultural Element 5-8
5.1.4 Sub-Regional/Area Water Resources Planning Documents 5-9
5.1.4.1 Description 5-9
5.1.4.2 Relationship to MWR 5-10
5.1.4.3 Timing 5-10
5.1.4.4 Issues related to coordination 5-10
5.1.4.5 Recommendations for Coordination 5-10
5.2 RECOMMENDATIONS FOR FUTURE MASTER WATER REPORT UPDATES 5-11
5.2.1 Areas of Improvement and Data Limitations 5-11

APPENDIX A TM No. 1, Description of Available Data, prepared by Wallace Group in association with Carollo Engineers, Fugro West Inc., and Cleath-Harris Geologists

APPENDIX B TM No. 2, Water Supply Inventory and Assessment – Description of Water Resources, prepared by Wallace Group in association with Fugro West Inc., and Cleath-Harris Geologists

APPENDIX C TM No. 3, Water Supply Inventory and Assessment – Water Supply, Demand, and Water Quality

APPENDIX D Memorandum, San Luis Obispo County Water Demand Analysis Methodology and Results, ESA, January 11, 2010

LIST OF TABLES

Table ES 1: Master Water Report Recommendations 4

Table 1.1 WRAC Workshops 1-4

Table 4.1 North Coast Sub-Region Groundwater Basins 4-2
Table 4.2 South Coast Sub-Region Groundwater Basins 4-20
Table 4.3 Inland Sub-Region Groundwater Basins 4-39
Table 4.4 Other Developed Supply Sources 4-55
Table 4.5 State Water Project Water Service Amount 4-60
Table 4.6 Nacimiento Water Project Participants 4-62
Table 4.7 Whale Rock Reservoir Allocations 4-63
Table 4.8 Whale Rock Downstream Entitlements 4-64
Table 4.9 Lopez Lake Allocations 4-65
Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas(1) 4-77

Table 4.11 Urban Water Demand by Water Planning Area [(1)] 4-83
Table 4.12 Crop Group and Commodities Used for the Agricultural Demand Analysis 4-84
Table 4.13 Existing Irrigated Crop Acreage Determined in GIS[(1)] 4-85
Table 4.14 Forecast Irrigated Crop Acreage Determined in GIS[(1)] 4-87
Table 4.15 Agricultural Water Demand by Water Planning Area [(1)] 4-88
Table 4.16 Existing and Future Rural Water Demand 4-90
Table 4.17 Mean Annual Discharge and Environmental Water Demand Estimates 4-93
Table 4.18 San Simeon CSD Demand and Supply 4-95
Table 4.19 San Simeon WPA 1 Demand and Supply 4-96
Table 4.20 Cambria CSD Demand and Supply 4-98
Table 4.21 Cambria WPA 2 Demand and Supply 4-100
Table 4.22 Cayucos Area Water Organization Demand and Supply 4-102
Table 4.23 Cayucos WPA 3 Supply and Demand 4-104
Table 4.24 Morro Bay and Chorro Valley Water Demand and Supply 4-108
Table 4.25 Morro Bay WPA 4 Supply and Demand 4-112
Table 4.26 Population Estimates and Connection Data for Urban Water Purveyors (2002 Los Osos CSD WMP, 2009 RMS, and GSWC Files) 4-114
Table 4.27 Los Osos Area Demand and Supply 4-115
Table 4.28 Los Osos WPA 5 Demand and Supply 4-117
Table 4.29 San Luis Obispo (includes County airport), Cal Poly San Luis Obispo, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, CSA 12, and Port San Luis Demand and Supply 4-123
Table 4.30 San Luis Obispo/Avila WPA 6 Demand and Supply 4-126
Table 4.31 Golden State Water Company (Edna Valley) Demand and Supply 4-128
Table 4.32 Pismo Beach, Arroyo Grande, Grover Beach, and Oceano CSD Demand and Supply 4-134
Table 4.33 Northern Cities Management Area Rural Water Use Demand 4-136
Table 4.34 Northern Cities Management Area Demand and Supply 4-138
Table 4.35 Golden State Water Company, Nipomo CSD, Rural Water Company, and Conoco-Phillips Demand and Supply 4-144
Table 4.36 Agricultural Demand 4-146
Table 4.37 NMMA Demand and Supply 4-147
Table 4.38 South Coast WPA 7 Demand and Supply 4-150
Table 4.39 Huasna Valley WPA 8 Demand and Supply 4-155
Table 4.40 Cuyama Valley WPA 9 Demand and Supply 4-157
Table 4.41 Solar Farm Demand Estimates 4-159
Table 4.42 Carrizo Plain WPA 10 Demand and Supply 4-161
Table 4.43 Rafael/Big Spring WPA 11 Demand and Supply 4-163
Table 4.44 Santa Margarita Area Demand and Supply 4-166
Table 4.45 Santa Margarita WPA 12 Demand and Supply 4-167
Table 4.46 Summary of Existing Water Supplies for Templeton CSD 4-170
Table 4.47 Garden Farms CWD, Templeton CSD, Atascadero MWC, and Paso Robles Demand and Supply 4-174
Table 4.48 Atascadero/Templeton WPA 13 Demand and Supply 4-177
Table 4.49 San Miguel CSD, Camp Roberts, CSA 16, and Paso Robles Demand and Supply 4-184
Table 4.50 Salinas/Estrella WPA 14 Demand and Supply 4-187
Table 4.51 Cholame WPA 15 Demand and Supply 4-190
Table 4.52 Nacimiento WPA 16 Demand and Supply 4-193
Table 4.53 City of San Luis Obispo 2010 Water Supply Accounting 4-255

Table 4.54 San Simeon WPA 1 Water Management Strategies 4-266
Table 4.55 Cambria WPA 2 Water Management Strategies 4-270
Table 4.56 Cayucos WPA 3 Water Management Strategies 4-273
Table 4.57 Morro Bay WPA 4 Water Management Strategies 4-278
Table 4.58 Los Osos WPA 5 Water Management Strategies 4-282
Table 4.59 San Luis Obispo/Avila WPA 6 Water Management Strategies 4-287
Table 4.60 South Coast WPA 7 Water Management Strategies 4-294
Table 4.61 Huasna Valley WPA 8 Water Management Strategies 4-300
Table 4.62 Cuyama Valley WPA 9 Water Management Strategies 4-303
Table 4.63 Carrizo Plain WPA 10 Water Management Strategies 4-306
Table 4.64 Rafael/Big Spring WPA 11 Water Management Strategies 4-310
Table 4.65 Santa Margarita WPA 12 Water Management Strategies 4-313
Table 4.66 Atascadero/Templeton WPA 13 Water Management Strategies 4-318
Table 4.67 Salinas/Estrella WPA 14 Water Management Strategies 4-324
Table 4.68 Cholame WPA 15 Water Management Strategies 4-329
Table 4.69 Nacimiento WPA 16 Water Management Strategies 4-332

LIST OF FIGURES

Figure 1.1 Sub-Regions and Water Planning Areas 1-2

Figure 2.1 North Coast Sub-Region 2-2
Figure 2.2 South Coast Sub Region 2-4
Figure 2.3 Inland Sub-Region 2-7

Figure 3.1 Measured Regional Groundwater Wells 3-2
Figure 3.2 District Groundwater Measuring Program 3-4
Figure 3.3 U.S. Geological Survey Well Measuring Program 3-6
Figure 3.4 Streams With Current Gauge Stations 3-8
Figure 3.5 San Luis Obispo County Stream Measuring Program 3-11
Figure 3.6 USGS Stream Gauge Sites 3-13
Figure 3.7 Regional Rain Gauge Network 3-14
Figure 3.8 County Recording Rain Gauge Distribution 3-15
Figure 3.9 County Volunteer Rain Gauge Distribution 3-17
Figure 3.10 District Real-Time Rain Gauge Network 3-19
Figure 3.12 Regional COOP Stations 3-22
Figure 3.13 Citizen Weather Observer Program Gauges 3-24
Figure 3.14 Remote Automated Weather Station (RAWS) Gauges 3-26
Figure 3.15 FAA ASOS Stations 3-28
Figure 3.16 Local National Weather Service QPFs 3-29
Figure 3.17 Reservoir Locations 3-31
Figure 3.18 Central Coast Ambient Monitoring Program 3-35
Figure 3.19 SLOSEA Sites 3-38
Figure 3.20 EPA's National Coastal Assessment 3-39
Figure 3.21 County Public Health Beach Monitoring 2010 3-41
Figure 3.22 National Data Buoy Center 3-43
Figure 3.23 Historic United States Geological Survey (USGS) Water Quality Monitoring Sites 3-44
Figure 3.24 NCMA Coastal Sentry Wells 3-46

Figure 4.1 San Luis Obispo County Water Planning Area 1 4-3
Figure 4.2 San Luis Obispo County Water Planning Area 2 4-7
Figure 4.3 San Luis Obispo County Water Planning Area 3 4-11
Figure 4.4 San Luis Obispo County Water Planning Area 4 4-15
Figure 4.5 San Luis Obispo County Water Planning Area 5 4-18
Figure 4.6 San Luis Obispo County Water Planning Area 6 4-21
Figure 4.7 San Luis Obispo County Water Planning Area 7 4-25
Figure 4.8 San Luis Obispo County Water Planning Area 8 4-35
Figure 4.9 San Luis Obispo County Water Planning Area 9 4-37
Figure 4.10 San Luis Obispo County Water Planning Area 10 4-41
Figure 4.11 San Luis Obispo County Water Planning Area 11 4-43
Figure 4.12 San Luis Obispo County Water Planning Area 12 4-45
Figure 4.13 San Luis Obispo County Water Planning Area 13 4-48
Figure 4.14 San Luis Obispo County Water Planning Area 14 4-51
Figure 4.15 San Luis Obispo County Water Planning Area 15 4-54
Figure 4.16 San Luis Obispo County Water Planning Area 16 4-56
Figure 4.17 San Luis Obispo County Water Planning Areas..... 4-58

MASTER WATER REPORT

With cyclical droughts, declining groundwater levels, degradation of groundwater quality, and the limited availability of surface water supplies, it is important for all entities in San Luis Obispo County ("County" for government; "county" for geographic domain) to effectively manage available water resources to protect the public health and safety, maintain viable ecosystems, avoid seawater intrusion, and allow for sustainable agriculture.

To that end, this Master Water Report (MWR) is a compilation of the current and future water resource management activities being undertaken by various entities within the County and is organized by Water Planning Area (WPA). The MWR explores how these activities interrelate, analyzes current and future supplies and demands, identifies future water management strategies and ways to optimize existing strategies, and documents the role of the MWR in supporting other water resource planning efforts.

The San Luis Obispo County Flood Control and Water Conservation District (District) initiated and completed this latest MWR update. The original 1972 Master Water and Sewage Plan (subsequent title change) was previously updated in 1986 and 1998.

ES.1 SUMMARY OF REPORT CHAPTERS

Chapter 1: Chapter 1 introduces the scope, goals and objectives, as well as the limitations, of the District's MWR.

Chapter 2: Chapter 2 describes the topical and geographical organization of the MWR and the County into three sub-regions and 16 Water Planning Areas (WPAs). Water demand, agricultural water needs, sources of supply, and other information are organized by WPA. The WPAs were intended to recognize important hydrogeologic units or water management areas throughout the County.

Chapter 3: Chapter 3 describes the existing data collection programs and the data available for completing the MWR and for managing water resources in the County.

Chapter 4: Chapter 4 evaluates and compares the available water supplies (apart from the untreated ocean) to the water demands for the different WPAs.

Chapter 5: Chapter 5 describes the relationship between the MWR and the different State, County, and local agency water related documents, programs, or policies that guide water resource management decisions. In addition, this chapter also suggests coordination efforts that should occur in future updates to the MWR that would promote consistency between it and other County, District and State documents.

ES.2 MASTER WATER REPORT RECOMMENDATIONS

This section presents a summary of the recommendations for District actions to improve water supply to meet existing and future demands throughout the County (Table ES 1). Many of the recommendations explore regional options that could be implemented County-wide to improve supply reliability and to improve the information contained in future MWRs. The analysis and support for implementing different water management strategies to meet existing and forecast demands, and to improve supply reliability for specific water providers and users are presented in Chapter 4 and will not be repeated in the Executive Summary.

ES.2.1 District's Highest Priorities

1. **District's Role with Regional Water Supply and Facilitating Interagency Arrangements:** Lead the effort to optimize the use of unsubscribed water from the State Water Project (SWP) and the Nacimiento Water Project (NWP), in conjunction with other facilities, to promote enhanced use of existing available resources that support local agency use and exchanges by:
    a. Developing policies for the use of unsubscribed water given the various needs in the County and existing County policies (for example, there is a need for increased direct deliveries in some areas of the County and a need for recharge/in-lieu delivery projects in other areas)
    b. Identifying and conducting pilot projects with the available resources to evaluate the effectiveness of various exchange concepts
    c. Establish the District's role in the development of a "boiler plate" agreement, or streamlined, standard process for local agencies to implement transfer agreements, and emergency intertie agreements.
2. **District's Role with Sub-regional Water Balance Analyses and Management**: Water demands were quantified on a WPA basis. Recognizing that some areas do not have adequate assessments of the water demand and supplies available, the District's role in and approach to analyzing water balances on a watershed and/or groundwater basin basis throughout the County should be established. Once established, specific priorities and work efforts can be identified. Two recommendations that support this effort follow:
    a. **Improve Environmental Water Demand Estimate:** Establish the District's role in implementing the recommendations associated with evaluating Environmental Water Demand in the County (for example, should the District conduct analyses, or somehow be involved with analyses, to estimate in-stream flow requirements to support the associated ecosystem?). Continue to prioritize and establish data collection locations in accordance with the District's Data Enhancement Plan, District funds, and the established role of the District.
    b. **Improve Agricultural Demand Estimate:** Future planning efforts need to include agricultural demands not captured in the Agriculture Commissioner's pesticide use permits GIS database. Also, future planning efforts should either develop more accurate agricultural demand estimates or complete a separate study that focuses solely on agricultural demands, and then incorporate the findings into future MWRs. Agricultural demand accounts for nearly 80 percent

of the total County demand. Inaccuracies in the assumptions could lead to large variances in the demand estimates.

3. **Future Master Water Report Updates:** The information in this MWR will be integrated into the region's Integrated Regional Water Management Plan (IRWM Plan). If the District continues to lead efforts in maintaining an IRWM Plan for the region (which is the County line), it may make sense to just update the IRWM Plan. Regardless of the document that houses the information contained and generated from this MWR, updates should occur on a five year cycle, following the completion of Urban Water Management Plans (UWMPs). However, the District should maintain a current inventory of other water resource data, GIS-based land use data and reports (e.g. water master plans, groundwater studies) and track progress on implementation of the recommendations to streamline future document updates. The District should encourage entities that do not prepare UWMPs to provide projected demand information.

ES.2.2 Water Management Strategies for Specific Users

The identification of water management strategies and the potential for implementing a management strategy for cities, communities, and other agencies within the County are discussed in Chapter 4. Note that the suggested water management strategies are not requirements, and most are consistent with existing water planning studies and options being considered by cities, communities, and agencies.

Interested persons not reading the entire MWR will want to become familiar with at least their own WPA as well as the regulations and planning documents of other agencies in the area where they live.

Table ES 1: Master Water Report Recommendations

Recommendation *(MWR Reference)*	Key Steps to Implementing Recommendation	Basis of Recommendation
ACTIONS TO IMPROVE FUTURE MASTER WATER REPORT UPDATES		
Create a Framework for Maintaining the Master Water Report *(MWR Section 5.2)*	• Determine whether to maintain both an IRWM Plan and a MWR - Update the MWR on a five-year cycle, following the completion of Urban Water Management Plans, in years ending in 1 or 6 (i.e. 2016, 2021, etc.) and in coordination with the County's Resource Management System. • Encourage all water purveyors to project water demand into the future. • Maintain a current inventory of other water resource data and reports (e.g. water master plans, groundwater studies). • Develop a consolidated, coordinated, web-based mechanism for improving, gathering, and sharing county-wide water supply and demand information to avoid redundancy and ensure consistency. • Utilize a web-based approach to maintain data. • Consider the analyses conducted to develop the Land Use and Circulation Element and Community 2050, and updates to the Resource Management System when updating the land-use-based water demand analysis in the MWR.	• Updating the MWR on a regular basis, consistent with UWMP timing, will provide the District and agencies in the County with a reliable planning-level document. • Will reduce the demand on District resources by streamlining processes (i.e. with UWMP efforts).
Improve Approach for Quantifying Demands *(MWR Section 4.6)*	• Refine future MWR investigation of the demand versus supply on a groundwater basin and/or watershed basis within WPAs.	• Understanding of demand and source of supply would be improved if the investigation looked more closely than the WPA level.
Improve Agricultural Demand Estimate *(MWR Sections 4.6.3 and 4.8.7)*	• Future planning efforts need to include agricultural demands not captured in the Agriculture Commissioner's pesticide use permits GIS database (e.g. irrigated pastures, livestock water use, etc.). • Define stakeholder groups in each WPA to coordinate and refine these (and other) estimates on a watershed and groundwater basin basis for their WPA. • Future planning efforts should either develop more accurate agricultural demand estimates or complete a separate study that focuses solely on agricultural demands, and then incorporate the findings into future MWRs. • Develop a voluntary pilot program where a representative percentage of agricultural water users could meter and report their water use, and the District would track actual applied water per acre for various agricultural users throughout the county.	• Agriculture accounted for nearly 80 percent of the total county current water demand. Errors in the assumptions or water duty factors could result in large increases or decreases in the total demand. • This MWR likely underestimates the agricultural demands for certain water planning areas, in particular the north coast of the county. • The irrigation factors used for each crop type could be under or over estimating the total demand. • By forming stakeholder groups, the District would encourage local participation and control for determining agricultural water demand.
Improve Rural Demand Estimate *(MWR Sections 4.6.4 and 4.8.8)*	• Utilize rural water use information made available by Resource Management System 2009 Annual Summary Report (e.g. via installation of flow meters on non-agricultural wells, monthly water use recording and semi-annual reporting for water purveyors, etc.), as it becomes available.	• Increases accuracy in rural water demand estimates and reduces need for assumptions in water duty factors.

Table ES 1: Master Water Report Recommendations

Recommendation *(MWR Reference)*	**Key Steps to Implementing Recommendation**	**Basis of Recommendation**
Agricultural and Rural Users Water Management Strategies *(MWR Section 4.8.9)*	• The District should participate in and promote a "stakeholder driven" water balance evaluation on a watershed and groundwater basin basis within the county to better understand the relationship between supply and demand.	• The agricultural and rural water demands were quantified on a WPA basis. It is recognized that some areas do not have adequate assessments of the water supplies available to conclude whether a supply deficit exists.
Environmental Water Management Strategy *(MWR Sections 4.6.5 and 4.8.10)*	• Develop policies for District's role in further developing the Environmental Water Demand values throughout the WPAs (e.g. installing stream gauges, leading studies, promoting local control).	• Site- and project- specific instream flow requirements allow the environmental water demand to be quantified and represented on a sub-watershed or creek basis, while the current analysis considered the Environmental Water Demand on a WPA level.
PROJECTS AND PROGRAMS		
Contingency Plan or Reliability Supply *(MWR Section 4.8.1)*	• Suggest that each community in the county consider developing a contingency plan or reliability supply, if they have not already done so. Provide technical expertise or administrative support to County Service Areas.	• Facilitates implementation of a combination of emergency conservation measures/ new supplies. • Ability to address the uncertainties with climate change and the potential impacts to water supply. • Without a contingency or reliability plan, a community may be unable to respond to extended periods of below average water supply.
Stream Gauge Installation *(MWR Section 3.2.2)*	• Continue to prioritize and establish data collection locations in accordance with the District's Data Enhancement Plan, District funds, and the established role of the District in implementing the Environmental Water Management recommendations., attempting to place new sites where past, inactive gauges existed (providing a period of record that will complement any new data collected).	• Placing gauges on major creeks near the confluence with significant tributaries, on some smaller streams and tributaries, and at major cities along the major creeks would provide valuable information for developing instream flow requirements. • The eastern portion of the county (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of unimpaired data and regional physiographic differences.
Water Conservation/ Water Use Efficiency *(MWR Sections 4.5, 4.7.4, and 4.8.3)*	Establish the District's role in: • Promoting agencies within the county to join Partners in Water Conservation. • Increasing communication with the agricultural and rural community, and promote use of conservation measures by rural and agricultural users. • Increasing knowledge of supply limitations and findings of this study. • Local stakeholder groups should establish conservation goals for different groundwater basins throughout the county.	• Conservation supports the Contingency and Reliability Supply Plan recommendation (e.g. secures drought buffer). • Consistent with the State's water conservation goals. • Improves management of water supplies.
Regional Water Supply Strategies *(MWR Section 4.8.2)*	• Lead the effort to optimize the use of unsubscribed SWP or NWP to promote enhanced use of existing available resources that support local agency use and exchanges.	• Optimizing the use of surface water supplies could preserve groundwater for agricultural users and County residents or for times when there are reductions in surface water deliveries.
Unsubscribed State Water Project *(MWR Sections 4.7.8, 4.8.2, and 4.8.11)*	• Understand which entities may be interested in receiving additional State Water by compiling a list of interested parties. • Complete the hydraulic capacity study of the SWP Coastal Branch to determine if sufficient capacity exists to transmit additional State Water to coastal	• This effort will identify the potential for the delivery of additional unsubscribed State Water and support the optimization of unsubscribed surface water supplies. Use of unsubscribed SWP will also be considered in evaluating and negotiating the use of any extra capacity in the Coastal Branch.

Table ES 1: Master Water Report Recommendations

Recommendation *(MWR Reference)*	**Key Steps to Implementing Recommendation**	**Basis of Recommendation**
	communities. • Understand exchange opportunities with other resources within the District that may free up a portion of the existing State Water allocation. • Develop and/or update District policies regarding which entities have priority to receive State Water. • Provide a final opportunity to existing SWP participants to execute Drought Buffer Agreements. • Negotiate use of excess capacity and District allocation with CCWA and DWR guided by District needs and priorities, as-needed.	
Streamline Institutional Agreements *(MWR Section 4.8.6)*	• Establish the District's role in developing "boiler plate" agreements, or streamlined, standard processes for local agencies to implement transfer and emergency intertie agreements. • Establish the District's role in the development of governance structures to implement future projects and programs, where appropriate (e.g. Nacimiento Project Commission).	• Local agencies have requested that the District lead the development of a template agreement for interagency agreements or water transfers.
Interagency Arrangements and Exchanges *(MWR Section 4.8.6)*	• Develop policies for District's role in promotion of opportunities to move water within the county and to match demands with available sources at different times. • Identify and conduct pilot projects to evaluate options.	• Exchanges would allow entities with water supply needs that cannot feasibly connect directly to the NWP or SWP to receive a supply from a source to which they are already connected via exchange.
Groundwater Evaluations *(MWR Section 4.8.4)*	• Develop policies for District's role in these efforts (i.e. basin monitoring programs, Groundwater Management Plans per basin, education and outreach programs).	• Updates the perennial yield and groundwater information for basins that have not been studied for years. • Promotes the management of groundwater supplies.
Groundwater Banking/ Recharge *(MWR Sections 4.7.9 and 4.8.5)*	• Develop policies for District's role in these efforts (i.e. creation of advisory committees of stakeholders to develop basin-wide groundwater management plans, manage the use of available aquifer space for recharge, identify and evaluate local opportunities to reduce runoff and increase recharge, etc.). • Develop policies or evaluate existing policies that pertain to which water supplies can be used for this purpose.	• Groundwater banking is generally viewed as being difficult to implement and monitor if overlying land owners are not part of the banking project. Overlying land owners could extract water and benefit from a project that was funded by other parties. Or the operations of the banking project, if not designed and operated properly, could negatively affect neighboring overlying users. • County policies may discourage the use of water that is available for banking from being used.

Chapter 1

INTRODUCTION

The purpose of this chapter is to introduce the scope, goals and objectives of the San Luis Obispo County Flood Control and Water Conservation District (District) Master Water Report (MWR). With the recurrence of drought, degradation of groundwater basins and the limited availability of surface water supplies, it is important for all entities of San Luis Obispo County ("County" for government; "county" for geographic domain) to effectively manage available water resources. Water resources should be managed to simultaneously protect the public health and safety, maintain ecosystems, avoid seawater intrusion, and support agriculture into the future. In order to effectively manage water resources, it is important to understand the complete picture of water resources management in the county and how the practices (i.e. water use, policy adoption, planning, and project implementation) of all entities within the county influence each other.

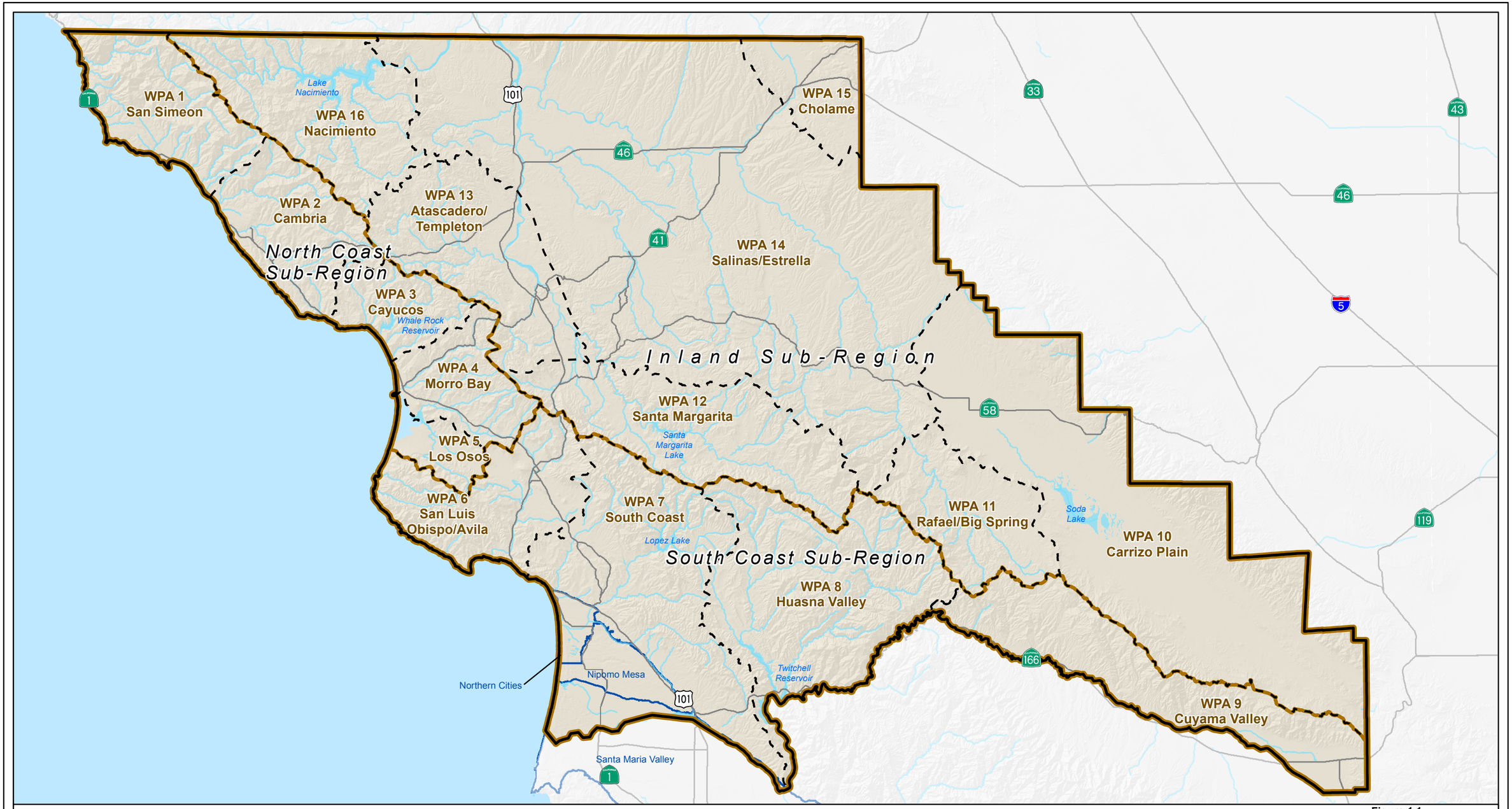
The District approached the MWR geographically by dividing the county into three (3) sub-regions (North Coast, South Coast, and Inland), and then further subdividing into water planning areas (WPAs) within each sub-region (Figure 1.1). This sub-regionalization facilitated water resources analysis by recognizing jurisdictions that overlie groundwater basins and interconnected watersheds in order to assess their relationship. The relationship between the three sub-regions that are connected by the District's/County's jurisdiction as well as the regional water projects such as the Nacimiento Water Project (NWP), Salinas Reservoir system, Whale Rock Reservoir system, Lopez Water System and State Water Coast Branch, were evaluated for their potential to be optimized to better meet the county's water needs.

It is recommended that future MWRs move away from the three sub-region and WPA approach, and focus more on individual watersheds and groundwater basins. In other words, future MWRs should become more detailed as the current WPAs are broken down further into smaller subsets that better fit the geographic and political boundaries that define local water planning efforts.

1.1 SCOPE OF MASTER WATER REPORT

The MWR is a comprehensive plan that evaluated multiple water management strategies, including optimization of existing water supplies to meet water resource needs countywide. In general, the scope of work for this project included:

- Documentation of existing water resource jurisdictions and their current and future activities/water planning efforts.
- Analysis and documentation of current and future water supply and demand on a county-wide basis.



Legend

- Highways
- Major Rivers/Streams
- Management Area
- Sub-Region
- Water Planning Area
- Water Planning Area Boundary
- Waterbodies

Text:

Sub-Region

Water Planning Area

Management Area

Hydrography

N

0 5 10 Miles

Figure 1.1
San Luis Obispo County
Sub-Regions and Water Planning Areas
Master Water Report
San Luis Obispo County Flood Control
and Water Conservation District

carollo
Engineers...Working Wonders With Water™

- Identification and analysis of potential water management strategies to address possible water supply shortfalls.
- Documentation of the role of the Master Water Report in supporting other water resource planning efforts.

1.2 GOALS AND OBJECTIVES

The main purpose of the MWR is to provide a comprehensive description and analysis of county-wide water resources and management efforts of these resources under current conditions and at general plan build-out for the different agencies within the county, and to identify and evaluate water management strategies for addressing forecast supply deficiencies, similar to Urban Water Management Plans and General Plan Water Elements.

Since many different entities have developed water resource analysis and land use planning documents for individual communities and areas in the county, the MWR combined those efforts with an analysis of the areas not covered by local plans to complete an integrated, county-wide MWR. This effort identified, consolidated, and integrated county-wide water supply and demand information to understand how water resources are influenced by urban, rural and agricultural users and to identify additional opportunities for water resource management.

Other specific goals and objectives of the MWR are discussed below.

1.2.1 Ensure Stakeholder Input/Participation

The approach for the preparation of this MWR included stakeholder input and participation. Participation was accomplished through a series of Water Resources Advisory Committee (WRAC) meetings, presentation of information to different agencies and County departments, and meetings with WRAC sub-committees and working groups. County staff and the project team met with the WRAC in a workshop setting at significant project milestones, as summarized in Table 1.1:

In addition to the WRAC meetings, the project team met with the County's Planning Department to discuss on-going studies for the unincorporated areas of the County and their impact on future development and water demands. The team also gathered data from and met individually (as needed) with some of the water agencies in the County to discuss findings and recommendations of the study.

1.2.2 Create a Framework for Maintaining the Master Water Report

The recommendation for updating and maintaining the MWR is discussed further in Chapter 5. The goal of those recommendations is to improve the process and efficiency for revising future MWRs. This will be facilitated by the County retaining the GIS shapefiles collected for the project and continually updating them as more information becomes

available. Other recommendations for creating a framework for maintaining the MWR include:

- Maintain a current inventory of water resource data and reports. Information collected to prepare this MWR is presented throughout the documents included in Appendices A through D.

Table 1.1 WRAC Workshops

Workshop No.	Date	Completed Tasks
1	June 3, 2009	WRAC Kick Off Meeting Presented goals and objectives of MWR Presented schedule and approach of study Clarify WRAC involvement
2	October 7, 2009	Presented available data Geographic organization of the County - Sub Regions and Water Planning Areas Summarized demand analysis approach - Urban, rural, agricultural, and environmental Summarized groundwater resources and water supply by WPA
3	January 6, 2010	Summarized preliminary water demand and supply analysis Presented criteria for asserting a supply shortfall and for evaluating supply strategies
4	April 7, 2010	Rated criteria for prioritizing water supply strategies Presented preliminary water management strategies Presented concepts for interagency agreements and cooperative programs to optimize existing water supplies
5	September 1, 2010	Presented demand and supply by WPA, urban agency, rural, agriculture and environmental user Presented revised water management strategies to resolve potential supply shortfalls
Working Group Meeting	November 10, 2010	Explored institutional arrangements and regional water management strategies
Working Group Meeting	December 21, 2010	Discussed preferred regional water management strategy options to optimize existing resources
6	March 21, 2011	Presented draft Master Water Report - Goals and objectives - General recommendations Presented general agricultural and rural water management strategies Presented findings and recommendations for urban users

- Improve the data sharing protocol between local agencies and the County for consistency and overlap/redundancy reduction.
- Specify how information from other water resources planning documents are used in the MWR and how information developed in the MWR can be utilized in other water resources planning documents.
- Establish a schedule for updating the MWR that is consistent with other water resources planning requirements.
- Specify the scope of work involved with updating the MWR.
- Estimate a budget for updating the MWR.

1.2.3 Accurately Present Current and Future Supply/Demand

Chapter 4 presents a summary of the county-wide water supply and demand. A reasonable level of accuracy was achieved because this project:

- Utilized recent water resource information, where available.
- Utilized land-use and demographic information.
- Utilized as much of the existing data as local resource agencies provided.
- Accounted for potential reductions in supply, reliability issues, future land use and/or conservation policies in the future water supply and demand analysis.

1.2.4 Ensure Support for Agricultural Demand Analysis

Chapter 4 summarizes the approach used to quantify the agricultural demands. The approach was presented to the WRAC and to the County's Agricultural Commissioner.

1.2.5 Ensure Support for Environmental Water Demand Characterization

Chapter 4 summarizes the approach used to quantify the environmental demands. The approach was presented to the WRAC.

1.2.6 Respect Autonomy of Individual Jurisdictions while Recognizing Differences/Conflicts

For urban users, this project relied primarily on published water master plans and water supply studies to be consistent with local purveyor water demand projections and planned water supply projects. Chapter 4 summarizes the documents used from the water purveyors within the county. In addition, each purveyor was provided multiple opportunities to review the draft memoranda and reports to ensure consistency between the MWR and their water planning documents.

1.2.7 Present Analysis of Options, Conclusions and Recommendations

Chapter 4 presents the water demand analysis for urban, rural, agricultural and environmental users in the county. It also presents the conclusions and recommendations for addressing potential water supply shortfalls, with an emphasis on promoting:

- Optimization of conservation measures.
- Optimization of unsubscribed State Water allocation.
- Optimization of unsubscribed Nacimiento Water Project allocation.
- Opportunities for optimizing other local surface water supplies.
- Opportunities for increasing the efficiency of existing infrastructure.
- Opportunities for water re-use.
- Opportunities for emergency/drought protection measures such as inter-ties and groundwater banking.

1.2.8 Ensure Compatibility with Other Documents

Chapter 5 summarizes how the MWR is related to, and coordinated with the development of several other County documents, including the:

- County's Integrated Regional Water Management Plan (IRWMP).
- Conservation and Open Space Element (COSE).
- Agricultural Element.
- Land Use Element.
- Resource Management System.

The goals, objectives and policies in the first three documents guided the analysis of water management strategies, and the data contained within and collected by the last two documents were valuable in conducting the analysis.

1.3 LIMITATIONS OF THE MASTER WATER REPORT

This document is not intended to establish water rights or to set the maximum water supply sources available to users within the County. It is primarily a "high-level" summary of available information and estimates of the water supply versus demand analysis. Comments about cities and other water suppliers are not to be interpreted as overruling the rights and powers of these agencies. Other technical limitations to this Master Water Report are presented below.

1.3.1 Technical Challenges with Demand Assessment

There were a number of technical challenges with analyzing and developing the urban, rural, agricultural and environmental demands for the MWR. Appendix D contains the technical memorandum that describes the water demand methodology used for this project and the assumptions made to facilitate the calculation of demands for the four categories. A description of the technical limitations in the approach for computing the urban, rural and agricultural demands follows, and the challenges with computing the environmental demands are discussed later in this section.

1.3.1.1 Urban Water Demand

The existing demands for urban users were based on available Water Master Plans, Urban Water Management Plans, and the County's Resource Management System. Although the demands are referred to as "existing," by the time the MWR is finalized, the data could be a few years old. This should not present a substantial problem since water demands do not fluctuate significantly from year to year. However, this minor issue highlights the difficulty in ensuring that the data presented in this report is current and that the demands are not absolute values, but approximations. Water providers should be encouraged to prepare urban water management plans, even if they are not required by California legislation, in order to maintain current demand projections and forecasts.

1.3.1.2 Rural Water Demand

The primary technical challenge with calculating rural water demands was having accurate water duty factors for rural water demands since most individual properties are not metered. Due to different climates and types of water usage, the water duty factors can vary widely between region and time of year. Coastal rural areas will generally require less water than inland rural areas due to greater evapotranspiration in the inland areas and more precipitation in the coastal areas.

1.3.1.3 Agricultural Water Demand

The Agriculture/Crop ArcGIS® layer for the County from August 2008 was used to determine existing agricultural acreage for each crop group. This layer is updated yearly with information from the pesticide use permits growers obtain through the San Luis Obispo Department of Agriculture. These permits are not entirely accurate as they occasionally include permanent crops which are planned and include many annual crops which may or may not be planted based upon various factors. The number of crop rotations varies and is not identified in the Agriculture/Crop ArcGIS® layer. The majority of irrigated vegetables are rotated numerous times throughout the year. Coastal areas with available water may have multiple crops planted in a particular year. The irrigation practices of each operation are also not accounted for. Given the current land use, the demand projection for Water Planning Area 1 in particular could be refined significantly by taking ranching operations water use and conservation easement provisions into account. Ranching operations do not

use pesticides and therefore are not included in the County's Agriculture/Crop ArcGIS® layer were not included in the demand calculation.

The agricultural crop ArcGIS® layer includes approximately 200 classifications of commodities. This included approximately 86,000 acres of rangeland and 42,000 acres of uncultivated agriculture. For purposes of this analysis, the irrigated commodities were categorized into seven groups. Although the groups are based on commodities that may have similar water requirements, the actual water usage will vary based on a number of variables including; individual commodities, soil type, and number of rotations on individual parcels.

1.3.1.4 Definition of "Build-Out" Demand

The forecast demands for urban users were based on available reports but represent the "build-out" demand of a service area, sphere of influence, or urban reserve line of an incorporated or unincorporated city in the county. There are two concerns with referring to the demands as build-out. The first is that the growth boundaries are not static. When general plans are updated, the growth boundaries typically change and expand. Therefore, the values presented in this report could increase in future MWR updates. The second concern is the year in which build-out is reached. Each community in the County grows at different rates and the year in which the forecast demand is reached is neither consistent nor fixed for each community. Therefore, the limitation with the build-out demand, which also applies to rural and agricultural demands, is the variability in future forecasts and the difficulty in estimating these values with available information.

1.3.1.5 Conservation and Irrigation Efficiencies

Since forecast demands are not absolute or fixed values, determining a range of possible demands was selected as the preferred approach. The approach to defining the low end of the demand range required some assumptions regarding conservation, development potential, and agricultural irrigation efficiencies and expansion. There are limitations to this approach because the assumptions made could vary from the actual consumption and create a potential shortfall in supply. The low forecast demand range for urban users assumed a certain amount of conservation for most communities. The amount assumed by each community depended on the anticipated level of conservation that could be achieved. The low demand range for rural users represents a percent of the development potential and recognizes that 100 percent of the property will not be developed. For agricultural demand, the approach assumed higher irrigation efficiencies for future demands than in existing demand calculations.

1.3.2 Use of Available Technical Documents

This MWR relied on and attempted to be consistent with available documents of various agencies. Terminology used in these available documents was often quoted verbatim for the MWR. Therefore, some suggested changes (i.e. comments received) to terms used in

this MWR were not adopted in order to remain consistent with respective reference documents. While this approach may cause some confusion it was believed consistency with the base document was the overriding consideration. The desired changes should be made first in the reference documents, before being incorporated into the MWR.

1.3.3 Groundwater Basin Yield Estimates

Published hydrogeologic information for many groundwater basins in the County are compiled from older reports and may not be representative of current conditions. For some groundwater basins, the safe yield estimate was based on the documented historical production that has not resulted in water supply problems. Also, the relationship between stream underflow, surface flow, and perennial yield is not adequately understood, especially for the coastal groundwater basins. In order to gain more current or detailed information for these basins, new and additional studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) could be useful to these studies. Additional information may also be available from the DWR and private sources.

1.3.4 Use of Management Area Reports

Annual reports for the Nipomo Mesa Management Area, Northern Cities Management Area and the Santa Maria Valley Management Area are prepared in accordance with the Stipulation and Judgment for the Santa Maria Groundwater Litigation (Lead Case No. 1-97-CV-770214). The annual reports provide an assessment of hydrologic conditions for the three management areas based on an analysis of the data accruing each calendar year. Each annual report is submitted to the court annually in accordance with the Stipulation in the year following that, which is assessed in the report.

The information contained in these annual reports could change based on data collected from the previous year, and the changes may not be reflected in this MWR. Readers should acknowledge that the figures presented in this MWR may not be 100 percent current, but we attempted to provide the most current available information at the time the MWR was being written.

1.3.5 Technical Challenges with Environmental Assessment

The environmental demand estimates presented in this master water report are not absolute values. Planning-level assessments such as this one do not take the complexity of natural systems into consideration and this point should be acknowledged when using the findings in this report. The results provide a reasonable and scientifically supported estimate of environmental water demand for the purposes of evaluating water balances on an annual water planning area basis. In watersheds with creeks that have transient high flows during the winter season, the timing of the flows can be as important to biological resources as the amount of flow. Unfortunately, evaluating to this level of detail was beyond the scope of this study, and will be left to future work. The environmental demand

assessment presented in this report should be viewed as a starting point that will be refined over time.

Site- and project-specific in-stream flow requirements determined on a sub-watershed or creek basis would improve future master water plans. A more detailed analysis would moderate the need to extrapolate data from one unimpaired stream and apply it to a neighboring watershed. This approach should make the analysis more focused and increase the certainty in the results. The first steps in this effort are establishing appropriate data collection sites, identifying opportunities for coordination with appropriate entities on the data collection effort and prioritizing locations to study first.

The specific steps that could be taken by the District include (in no particular order or priority):

- Increase the number and distribution of stream flow gauges to capture unimpaired runoff flow measurements and the varying hydrologic conditions throughout the County.
- Determine other data that would be necessary to complete a stream species specific analysis.
- Select a water planning area, watershed or creek to conduct a more focused environmental water demand assessment and develop a workplan for implementing the analysis that could be applied county-wide.
- Determine role of the District, County, resource agencies, local agencies, local stakeholders (project proponents), and riparian rights holders in implementing these steps.

1.4 DEFINITION OF KEY TERMS

ArcGIS: ArcGIS is a geographic information system (GIS) software product used for working with maps and geographic information. It is used for: creating and using maps; compiling geographic data; analyzing mapped information; and managing geographic information in a database.

CCWA: The Central Coast Water Authority was formed in 1991 through a Joint Exercise of Powers Agreement among nine public agencies in Santa Barbara County and has Water Supply Agreements with five other entities. CCWA was specifically formed for the purpose of designing, building and operating the facilities needed to deliver water from the State Water Project (SWP) to the various entities with contracts to receive that water in Santa Barbara County.

CEQA: The California Environmental Quality Act is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.

CSA: In unincorporated areas, residents of urban communities may want more services than those residing in rural areas. The County Service Area Law (Government Code §25210.1 *et seq.*) was created to provide a means for expanding service levels in areas where residents are willing to pay for the extra service. The law allows residents or county supervisors to initiate the formation of a County Service Area (or CSA). A CSA is authorized to provide a wide variety of services, including fire protection, water and garbage collection. A CSA may span all unincorporated areas of a county or only selected portions.

CSD: Community Services Districts (CSDs) are independent governmental agencies that exist separately from, and with substantial administrative and fiscal independence from, general purpose local governments. Special district governments provide specific services such as hospitals, sewerage, water and fire protection. CSDs are also subject to specific legislative and regulatory controls.

DWR: The mission of the California State Department of Water Resources (DWR) is to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments. DWR operates and maintains the California State Water Project (SWP). Other programs work to preserve the natural environment and wildlife, monitor dam safety, manage floodwaters, conserve water use, and provide technical assistance and funding for projects for local water needs.

ISJ: Interlocutory Stipulated Judgment (ISJ) established a formal process for the County and three water purveyors in Los Osos to engage in cooperative water resources management efforts to solve groundwater overdraft and current sea water intrusion.

MOA or MOU: A Memorandum of Agreement (MOA), also known as a Memorandum of Understanding (MOU), is a formal document used to outline an agreement made between two or more separate entities, groups or individuals. An MOA usually precedes a more detailed contract or agreement between the parties, after a process of negotiations and due diligence. This MOA may be used to cooperatively work together on an agreed-upon purpose or meet an agreed objective and outline the discussed terms of a new relationship.

MWR: The Master Water Report (this document) will serve to help policy makers, planners, and the public understand the long-range availability of water resources throughout the County of San Luis Obispo.

MWC: Mutual Water Companies (MWCs) are most commonly formed as general corporations or as nonprofit mutual benefit corporations. Mutual water companies may deliver water to their shareholders for agricultural irrigation or domestic uses.

NCMA: The Northern Cities Management Area (NCMA) includes the northernmost portion of the Santa Maria Valley Groundwater Basin. The cities of Arroyo Grande, Grover Beach, and Pismo Beach, the Oceano Community Services District, the County and local landowners that signed the court-approved stipulation during the Santa Maria Groundwater Basin litigation actively and cooperatively manage surface and groundwater resources in the NCMA.

NMMA: The Nipomo Mesa Management Area (NMMA) lies to the south of the NCMA and includes ConocoPhillips, Golden State Water Company, Nipomo Community Services District, Woodlands Mutual Water Company, Rural Water Company, and other NMMA overlying landowners that signed the court-approved stipulation during the Santa Maria Groundwater Basin litigation. The NMMA Technical Group is charged with developing the technical bases for sustainable management of the surface and groundwater supplies available in this management area.

RWQCB or Regional Board: The Regional Water Quality Control Board's (RWQCB or Regional Board) mission is to develop and enforce water quality objectives and implementation plans that will best protect the State's waters, recognizing local differences in climate, topography, geology and hydrology.

TMA or SMVMA: Twitchell Management Authority (TWA)(aka the Santa Maria Valley Management Area) is the largest of the three management areas that overlie the Santa Maria Valley Groundwater Basin. This management area lies over the main Santa Maria Valley. The SMVMA encompasses the contiguous area of the Santa Maria Valley, Sisquoc plain, and Orcutt upland, and is primarily comprised of agricultural land and areas of native vegetation, as well as the urban areas of Santa Maria, Guadalupe, Orcutt, Sisquoc, and several small developments.

UWMP: Urban Water Management Plans (UWMPs) are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required

to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple dry years. This assessment is included in its UWMP, which are prepared every 5 years and submitted to the Department of Water Resources.

WPA: Water Planning Area(s) (WPA or WPAs) represent geographic organization of the County. Water demand, water supply, and supply sources are organized by WPA. In general, the WPA boundaries coincide with watershed or groundwater basin boundaries, and are intended primarily to recognize important hydrogeologic units or water management areas throughout the County.

For additional information on terms found in the MWR, please refer to the reference documents listed throughout the MWR. Various publications (such as the Layperson's Guide to Water Rights Law published by the Water Education Foundation) are also available online for information regarding water rights and water law in California.

PART I: BACKGROUND ON WATER RESOURCE MANAGEMENT EFFORT

2.1 WATER PLANNING AREAS

The Master Water Report (MWR) effort is organized similar to the 1998 MWR, but with some modifications. This MWR is also organized by topical and geographical discussion. The County was divided into three sub-regions, North Coast, South Coast, and Inland, and was subdivided further into "Water Planning Areas," or WPAs. The WPAs represent the geographical organization of the County. Water demand, agricultural water needs, sources of supply, and other information are organized by WPA. The WPAs discussed below were intended to recognize important hydrogeologic units or water management areas throughout the County.

In general, the following types of information (hydrogeologic variations, natural and political boundaries) were used to define the WPAs, but no single approach was followed to delineate every WPA:

- Watershed boundaries
- Groundwater basin boundaries
- Urban growth boundaries
- Water supplies and management practices
- Similar demands and climate
- Similar water supply issues

2.1.1 North Coast Sub-Region

The North Coast Sub-Region shown in Figure 2.1 spans from the County line (San Luis Obispo/Monterey) southward to the community of Los Osos, bounded to the west by the Pacific Ocean and to the east by the Santa Lucia Range. This Sub-Region includes WPAs 1 through 5. This region includes the urban areas of San Simeon, Cambria, Cayucos, Morro Bay and Los Osos, and are numbered sequentially in this order.

2.1.1.1 San Simeon WPA 1

The San Simeon WPA encompasses the community of San Simeon, Hearst Ranch, agricultural and other rural overlying users in the northern-most portion of WPA 1. The primary groundwater supplies include the San Carpoforo, Arroyo De La Cruz, and Pico Creek Valley Groundwater Basins. The issues in this WPA include seawater intrusion and limited groundwater basin yield.

San Carpoforo Valley
Arroyo De La Cruz Valley
WPA 1
San Simeon
Pico Creek
San Simeon
San Simeon Valley
Santa Rosa Valley
WPA 2
Cambria
Cambria
Villa Valley
Cayucos Valley
WPA 3
Cayucos
Old Valley
Cayucos
Toro Valley
Morro Valley
WPA 4
Morro Bay
Morro Bay
Chorro Valley
Los Osos Valley
Los Osos
WPA 5
Los Osos
Oak Shores
Lake
Nacimiento
Intake PS
Heritage Ranch
Whale Rock
Reservoir
San Miguel
101
Camp
Roberts Tank
Paso Robles
Whitley Gardens
46
Santa Ysebel PS
Templeton
41
Creston
Atascadero
Rocky Canyon
Tank and PS
Tank #2
Garden Farms
Santa Margarita
Cuest Tunnel
and Tunnel Tank
Santa
Margarita
Lake
San Luis
Obispo WTP
San Luis Obispo

Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Highways
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Management Areas
- North Coast Sub-Region
- Water Planning Area
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
- **Water Planning Area**
- Groundwater Basin
- *URL/VRL*
- Water Facility
- Management Area
- *Hydrography*

Miles
0 3 6

Figure 2.1
North Coast Sub-Region (WPAs 1-5)
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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2.1.1.2 Cambria WPA 2

The Cambria WPA includes the community of Cambria, agricultural and other rural overlying users. The primary groundwater supplies include the San Simeon, Santa Rosa, and Villa Valley Groundwater Basins. The issues in this WPA include the potential for seawater intrusion, drought impacts to groundwater supplies, and limited groundwater basin yield.

2.1.1.3 Cayucos WPA 3

The Cayucos WPA includes the Cayucos Area Water Organization (CAWO) members (Morro Rock Mutual Water Company, Paso Robles Beach Mutual Water Company, County Service Area 10A, and the Cayucos Cemetery District), agricultural and other rural overlying users. The primary groundwater supplies include the Cayucos, Old and Torro Valley Groundwater Basins. CAWO members receive potable water predominantly from Whale Rock Reservoir. The issues in this WPA include drought impacts to groundwater supplies and limited groundwater basin yield.

2.1.1.4 Morro Bay WPA 4

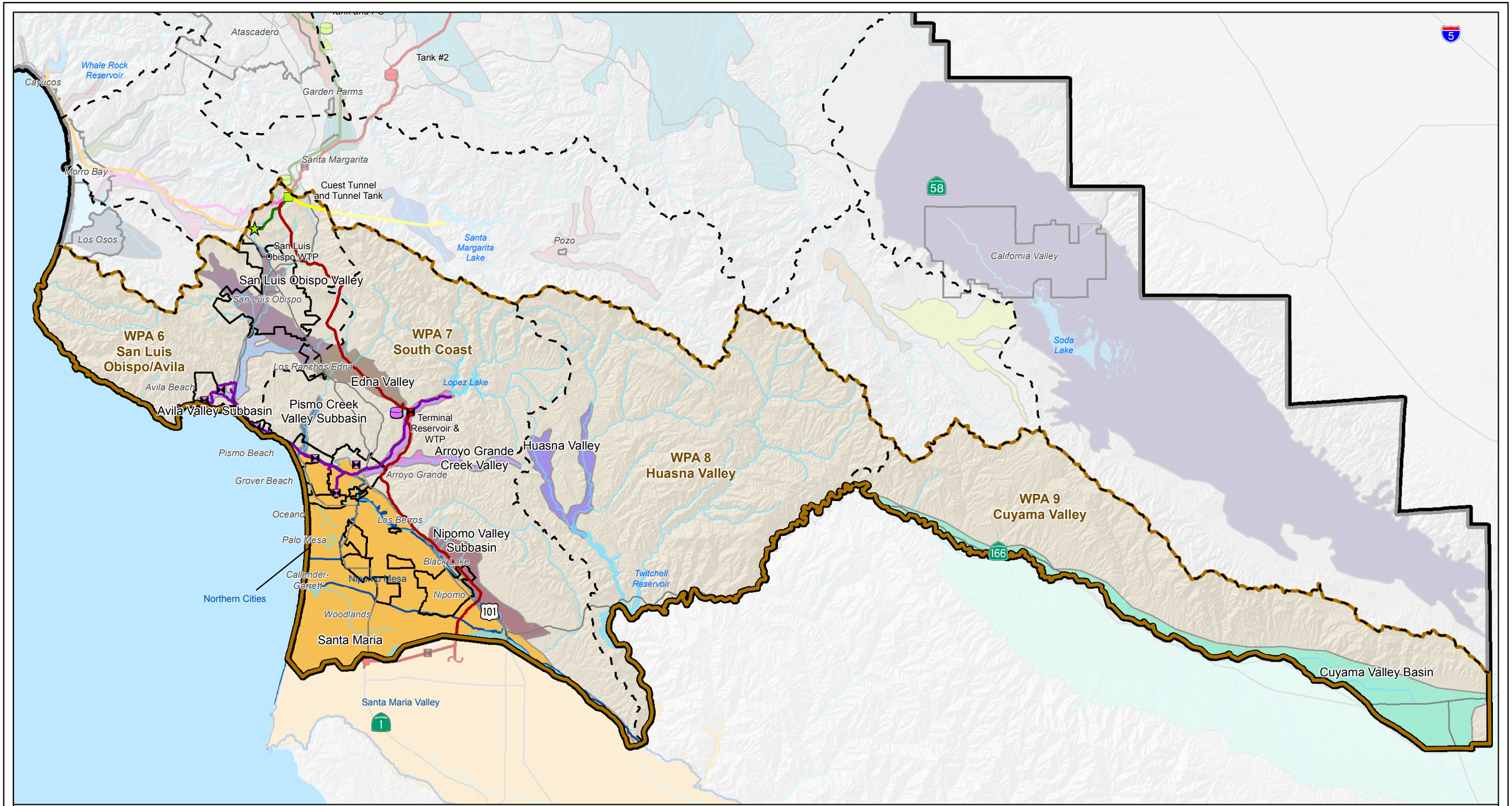
The Morro Bay WPA includes the City of Morro Bay, the Chorro Valley Water System (California Men's Colony, Cuesta College, Camp San Luis Obispo (National Guard), County Operations Center/Office of Education), agricultural and other rural overlying users. The only groundwater supplies include the Morro and Chorro Valley Groundwater Basins. Other major supply sources include the State Water Project, desalination (City of Morro Bay), Whale Rock Reservoir, Chorro Reservoir, and recycled water. The issues in this WPA include drought impacts to groundwater supplies and groundwater quality, and availability/reliability of State Water from year to year.

2.1.1.5 Los Osos WPA 5

The Los Osos WPA includes the community of Los Osos, agricultural and other rural overlying users. The primary groundwater supply is the Los Osos Valley Groundwater Basin. The issues in this WPA include drought impacts to groundwater supplies, groundwater quality and documented seawater intrusion.

2.1.2 South Coast Sub-Region

The South Coast Sub-Region shown in Figure 2.2 spans from the City of San Luis Obispo south to the County (San Luis Obispo/Santa Barbara) line, east to the Cuyama Valley, and west to the community of Avila Beach, and includes WPA 6 through 9. This WPA includes the urban areas of San Luis Obispo, Avila Beach/Port San Luis, Pismo Beach, Arroyo Grande, Grover Beach, Oceano, and Nipomo.



Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Highways
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Management Areas
- South Coast Sub-Region
- Water Planning Area
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Management Area
Hydrography

0 4 8 Miles

Figure 2.2
South Coast Sub-Region (WPAs 6-9)
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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2.1.2.1 San Luis Obispo/Avila WPA 6

The San Luis Obispo/Avila WPA includes the City of San Luis Obispo, County Airport, Cal Poly, Avila Beach Community Services District (Avila Beach CSD), Avila Valley Mutual Water Company (Avila Valley MWC), San Miguelito Mutual Water Company (San Miguelito MWC), County Service Area 12 (CSA 12), Port San Luis, agricultural and other rural overlying users. The primary groundwater supplies include the San Luis and Avila Valley Sub-basins. Other major supply sources include the State Water Project, Whale Rock Reservoir, Salinas Reservoir, Nacimiento Water Project, Lopez Lake Reservoir, and recycled water. The issues in this WPA include limited groundwater supplies.

2.1.2.2 South Coast WPA 7

The South Coast WPA includes Edna Valley (Golden State Water Company); the Northern Cities Management Area (NCMA), which includes the Cities of Pismo Beach, Arroyo Grande, and Grover Beach, Oceano Community Services District, agricultural and rural overlying users; the Nipomo Mesa Management Area (NMMA), which includes the Golden State Water Company, Nipomo Community Services District (NCSD), Rural Water Company, Woodlands Mutual Water Company (Woodlands MWC), ConocoPhillips, agricultural and rural overlying users; the Santa Maria Valley Management Area (SMVMA), which includes the City of Santa Maria, agricultural and rural users; and agricultural and rural users outside of the three management areas.

The primary groundwater supplies include the Edna, Pismo Creek, and Arroyo Grande Valley Sub-basins, the Santa Maria Valley Groundwater Basin, and the Pismo Formation. Other major supply sources include the State Water Project, Lopez Lake Reservoir, and recycled water. A potential water supply project is the Nipomo Supplemental Water Project. The issues in this WPA include adjudicated groundwater basins, limited groundwater supply, and to some extent groundwater quality.

2.1.2.3 Huasna Valley WPA 8

The Huasna Valley WPA includes agricultural and rural users only. There are no large population centers with urban demands in this WPA. The primary groundwater supply is the Huasna Valley Groundwater Basin. The issue in this WPA includes limited available data on the groundwater supply's safe yield.

2.1.2.4 Cuyama Valley WPA 9

The Cuyama Valley WPA includes agricultural and rural users, and some oil fields. There are no large population centers with urban demands in this WPA. The primary groundwater supply is the Cuyama Valley Groundwater Basin. Twenty-two percent of basin is in San Luis Obispo County, and the remainder of the basin resides in the counties of Santa Barbara, Kern, and Ventura. There is no separate yield estimate for the San Luis Obispo

County portion. The primary issues in this WPA include critical overdraft of the groundwater basin and water quality.

2.1.3 Inland Sub-Region

The Inland Sub-Region shown in Figure 2.3 essentially includes the WPAs that do not drain directly to the ocean, and includes WPA 10 through 16. The Inland sub-region therefore extends inland from the San Luis Obispo/Santa Barbara County line north to the San Luis Obispo/Monterey County line, bounded to the east by Kern and Fresno Counties, and to the west in part by the Santa Lucia range.

2.1.3.1 Carrizo Plain WPA 10

The Carrizo Plain WPA includes agricultural and rural users, and potentially future solar farms. There are no large population centers with urban demands in this WPA. The primary groundwater supply is the Carrizo Plain Groundwater Basin. The primary issues in this WPA include water quality and limited groundwater supply.

2.1.3.2 Rafael/Big Spring WPA 11

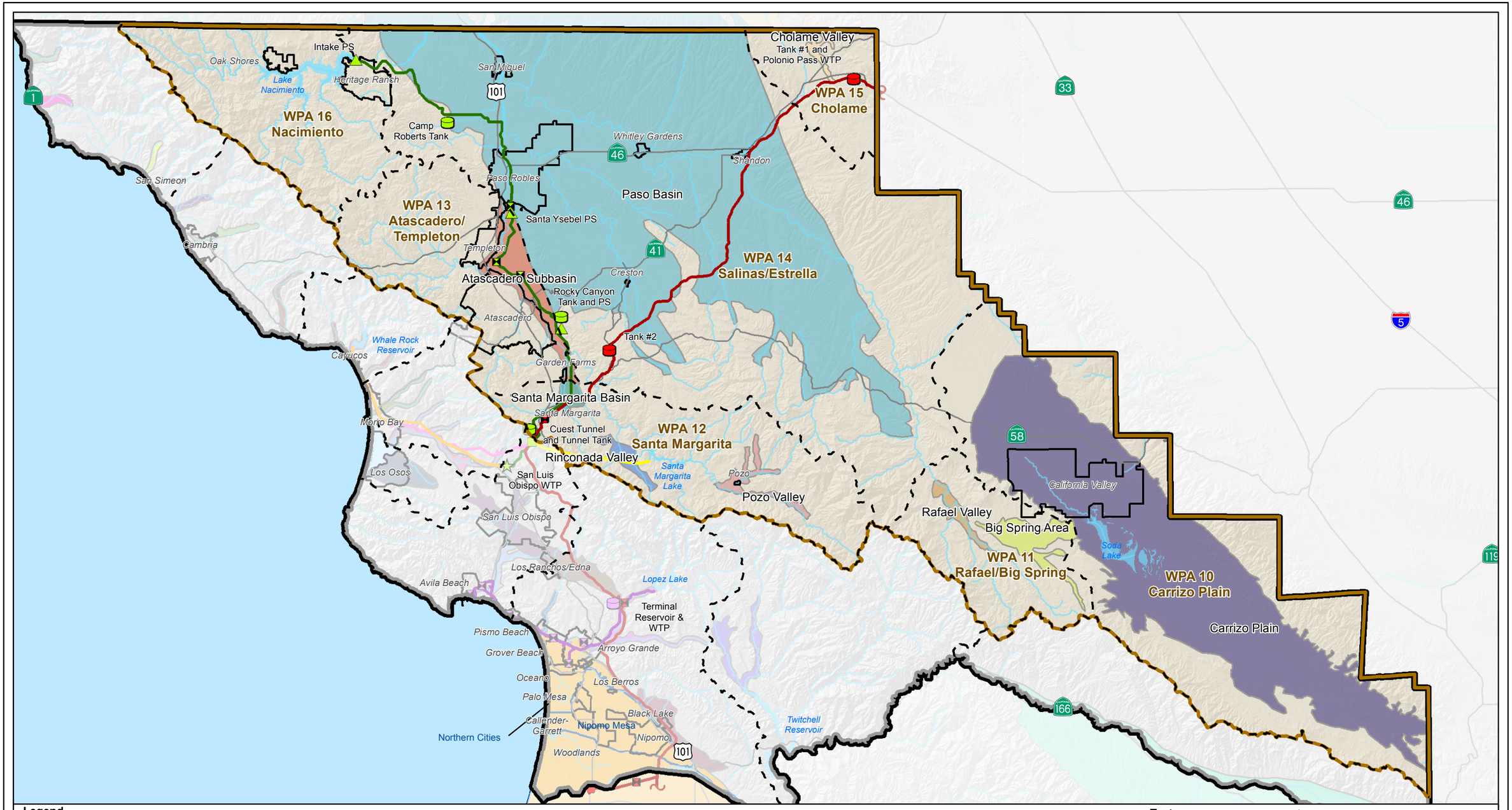
The Rafael/Big Spring WPA includes agricultural and rural users only. There are no large population centers with urban demands in this WPA. The primary groundwater supplies are the Rafael and Big Spring Valley Groundwater Basins. The issue in this WPA includes limited available data on the groundwater basin's safe yield.

2.1.3.3 Santa Margarita WPA 12

The Santa Margarita WPA includes Santa Margarita Ranch, County Service Area 23, agricultural and rural users. The primary sources of water supply for this WPA are the Santa Margarita, Rinconada, and Pozo Valley Groundwater Basins, and the Santa Margarita Creek Alluvial Aquifer. The primary issues in this WPA include limited available data on basin safe yield and limited groundwater supply.

2.1.3.4 Atascadero/Templeton WPA 13

The Atascadero/Templeton WPA includes the Templeton Community Services District (Templeton CSD), Atascadero Mutual Water Company, Garden Farms Community Water District, agricultural and rural users. The primary sources of water supply for this WPA are the Atascadero Groundwater Sub-basin (Paso Robles Formation and Salinas River Underflow), recycled water, and the Nacimiento Water Project. The issues in this WPA include limited basin yield and State managed water rights to the Salinas River underflow.



Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Highways
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Management Areas
- Inland Sub-Region
- Water Planning Area
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Management Area
Hydrography

0 5 10 Miles

Figure 2.3
Inland Sub-Region (WPAs 10-16)
Master Water Report
San Luis Obispo County Flood Control
and Water Conservation District

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2.1.3.5 Salinas/Estrella WPA 14

The Salinas/Estrella WPA includes the San Miguel Community Services District (San Miguel CSD), Camp Roberts, City of Paso Robles, County Service Area 16 (Shandon), agricultural and rural users. The primary sources of water supply for this WPA are the Paso Robles Groundwater Basin (Paso Robles Formation and Salinas River Underflow) and the Nacimiento Water Project. The issues in this WPA include water quality, State-managed water rights to Salinas River underflow, and declining groundwater levels.

2.1.3.6 Cholame WPA 15

The Cholame WPA includes agricultural and rural users only. There are no large population centers with urban demands in this WPA. The primary groundwater supply is the Cholame Valley Groundwater Basin. The issue in this WPA includes limited available data on the groundwater quality and basin safe yield.

2.1.3.7 Nacimiento WPA 16

The Nacimiento WPA includes Oak Shores, Heritage Ranch Community Services District, agricultural and rural users. The primary source of water supply for this WPA is Lake Nacimiento. The issue in this WPA is water supply reliability.

2.2 WATER SERVICE COOPERATIVE AGREEMENTS AND OTHER COORDINATION EFFORTS

This section discusses the various cooperative agreements and other inter-agency coordination efforts related to water supply throughout the County. A brief overview of these agreements and efforts is provided, listed in order by WPA:

- WPA 3, 4 and 6 - Whale Rock Reservoir Water Supply
- WPA 4 - City of Morro Bay/Whale Rock Commission
- WPA 4 – Chorro Valley Water System
- WPA 4, 6, 7 and 14 - State Water Contract
- WPA 5 – Los Osos Interlocutory Stipulated Judgment (ISJ)
- WPA 6 – Santa Margarita Lake/Salinas Reservoir
- WPA 6 and 7 - Lopez Lake Zone 3 Water Supply Project
- WPA 7 – Groundwater Management Agreement/Northern Cities Management Area
- WPA 7 – Nipomo Mesa Management Area (NMMA)
- WPA 4, 6, 13 and 14 - Nacimiento Water Supply Project
- WPA 13 and 14 - Paso Robles Groundwater Management Plan and Basin Agreement

2.2.1 WPA 3, 4 and 6 – Whale Rock Reservoir Water Supply

Whale Rock Reservoir is located on Old Creek Road approximately one-half mile east of the community of Cayucos. The project was planned, designed, and constructed under the supervision of the State Department of Water Resources. Construction took place between October 1958 and April 1961. The reservoir is jointly owned by the City of San Luis Obispo, the California Men's Colony (CMC), and Cal Poly. These three agencies, with the addition of a representative from the Department of Water Resources, form the Whale Rock Commission, which is responsible for operational policy and administration of the reservoir and related facilities. Day-to-day operation is provided by the City of San Luis Obispo.

Several agreements establish policy for the operation of the Whale Rock system and actions of the member agencies. These agreements cover aspects such as distribution of capital costs for the project construction, operations and apportionment of operations costs, downstream water rights, fish and wildlife protection, and other items.

In April 1996, the downstream water rights agreement was amended and replaced with a new agreement, establishing water entitlements for adjacent and downstream water users. The downstream water users (Cayucos Area Water Organization or CAWO) affected by this agreement consist of three public water purveyors and the cemetery, plus two other rural/agricultural users, all in the Cayucos area. These agencies are the Paso Robles Beach Water Association, Morro Rock Mutual Water Company, County Service Area 10A, and Cayucos-Morro Bay Cemetery District.

2.2.2 WPA 4 - City of Morro Bay/Whale Rock Commission

A mutual aid agreement exists between the Whale Rock Commission and the City of Morro Bay, dated 2000, relative to water resources in the event of an emergency. The SWP shuts down for annual maintenance activities each fall/winter during which the City has used its alternative supplies. In 2008, the SWP shutdown took place also when groundwater quality issues were limiting the City’s use of well water. The shortfall was made up for through this agreement with CMC to provide Morro Bay with water during that period. Treated Whale Rock water from CMC water treatment plant is conveyed to Morro Bay via the Chorro Valley Pipeline.

2.2.3 WPA 4 - Chorro Valley Water System

The Chorro Valley Water System includes these entities: CMC, Camp San Luis Obispo, Cuesta College, and San Luis Obispo County Operations Center/Office of Education**.** CMC operates a water treatment plant to provide potable water to CMC facilities and wheels water to Camp San Luis Obispo, Cuesta College, County Operations Center (which includes Fleet Services, Water Quality Lab, Juvenile Detention Center, County Jail, Office of Emergency Services), and County Office of Education. These entities have several inter-entity agreements relating to entitlements to their shared water supplies, which include

Whale Rock Water, Chorro Reservoir, and State Water. Camp San Luis Obispo also has first rights to one on-site well (County Well No. 1).

2.2.4 WPA 4, 6, 7, and 14 -State Water Project

The California Department of Water Resources (DWR) owns and operates the State Water Project (SWP). It is the largest state-built water and power project in the United States. The SWP first started delivering water to Californians in the 1960s. In 1963, the San Luis Obispo County Flood Control and Water Conservation District (District) contracted with DWR for 25,000 acre feet per year (AFY) of State Water. However, the Central Coast was not served with State Water until 1997 when the Coastal Branch conveyance and treatment facilities, serving Santa Barbara and San Luis Obispo counties, were completed.

The treatment facility for State Water delivered through the Coastal Branch, Polonio Pass Water Treatment Plant (PPWTP), is owned, operated and maintained by the Central Coast Water Authority (CCWA) for users in San Luis Obispo and Santa Barbara Counties. The Coastal Branch conveyance system is owned by DWR, which also operates and maintains the raw water portion of the system. The treated water portion is operated and maintained by CCWA. Agreements between CCWA, the Santa Barbara County Flood Control and Water Conservation District, the San Luis Obispo County Flood Control and Water Conservation District (District) and DWR are in place to establish these roles and relationships.

Upon initiation of the development of the Coastal Branch in the early 1990s, entities within the District came forward with Water Service Amount (WSA) requests for portions of the District's allocation of State Water. After extensive policy discussions regarding the use of State Water, the District entered into Water Supply Agreements with the agencies identified in Chapter 3, Table 3.5, and Master Water Treatment and Coastal Branch construction agreements with CCWA for treatment of and associated delivery capacity for 4,830 AFY of State Water.

Water purveyors receiving State Water include the following:

- WPA 4 - City of Morro Bay, CMC, County Operations Center, Cuesta College
- WPA 6 - San Miguelito MWC, Avila Beach CSD, Avila Valley MWC, San Luis Coastal USD.
- WPA 7 - City of Pismo Beach and Oceano CSD.
- WPA 14 - Shandon (not currently receiving – anticipated to receive in 2013).

2.2.5 WPA 5 – Los Osos Interlocutory Stipulated Judgment (ISJ)

The following three water purveyors serve the community of Los Osos:

- Los Osos Community Services District (Los Osos CSD)

- S & T Mutual Water Company (S&T MWC)
- Golden State Water Company (GSWC)

These three water agencies and overlying water users utilize the same groundwater basin in the Los Osos Valley. The three local water purveyors, along with the County of San Luis Obispo, are currently preparing a Basin Management Plan under a court-approved Interlocutory Stipulated Judgment (ISJ).

2.2.6 WPA 6 – Santa Margarita Lake/Salinas Reservoir

The Salinas Dam was built in 1941 by the War Department to supply water to Camp San Luis Obispo and, secondarily, to meet the water needs of the City of San Luis Obispo. The Salinas Reservoir (Santa Margarita Lake) captures water from a 112 square mile watershed and can currently store up to 23,843 acre-feet (AF). In 1947, the Salinas Dam and delivery system was transferred from the regular Army to the U.S. Army Corps of Engineers. Since 1965, the District has operated this water supply for the City under a lease from the U.S. Army Corps of Engineers. Water from the reservoir is pumped through the Cuesta Tunnel (a one mile long tunnel through the mountains of the Cuesta Ridge) and then flows by gravity to the City's Water Treatment Plant on Stenner Creek Road. Transfer of dam ownership to the District from the U.S Army Corps of Engineers is under consideration.

2.2.7 WPA 7 – Groundwater Management Agreement/Northern Cities Management Area

The Northern Cities (including the cities of Arroyo Grande, Grover Beach, and Pismo Beach, and the Oceano Community Services District) have a long history of cooperatively managing the groundwater underlying the Northern Cities area. The 1983 "Gentlemen's Agreement," as amended, was reaffirmed in a 2002 Agreement Regarding the Management of the Arroyo Grande Groundwater Basin ("2002 Groundwater Management Agreement"). The 2002 Groundwater Management Agreement was incorporated into the 2005 Stipulation, which was ultimately affirmed by the Court within the 2008 Judgment. For more information on the Santa Maria Valley Groundwater Basin litigation, see section 4.2.2.2.3.

The 2002 Groundwater Management Agreement established a safe yield for the Arroyo Grande Groundwater Basin of 9,500 AFY. The safe yield included subdivisions for agricultural irrigation (5,300 AFY), subsurface flow to the ocean (200 AFY) and urban uses (4,000 AFY). It also provided that urban groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses, referred to as an agricultural conversion credit, or "ag credit." Accordingly, the Cities of Arroyo Grande and Grover Beach have increased their groundwater allocations through the conversion of agricultural uses to urban uses within their service areas. The 2010 Annual Report for the Northern Cities Management Area (NCMA) summarizes the groundwater allocations for the Northern Cities as follows:

Urban Area	Groundwater Allotment (from 2002 Groundwater Management Agreement), AFY	Ag Credit, AFY	Total, AFY
Arroyo Grande	1,202	112	1,314
Grover Beach	1,198	209	1,407
Pismo Beach	700	0	700
Oceano CSD	900	0	900
Total	4,000	321	4,321

In addition to the monitoring and reporting requirements described in the Stipulation, representatives from the NCMA frequently meet and coordinate with representatives from the Nipomo Mesa Management Area and the Santa Maria Valley Management Area (SMVMA) through the SMVMA's Technical Subcommittee.

2.2.8 WPA 6 and 7 – Lopez Lake Zone 3 Water Supply Project

The District completed the Lopez Dam in 1968 to provide a reliable water supply for agricultural and municipal needs as well as flood protection for coastal communities. Allocations for Lopez water are based on a percentage of the safe yield of the reservoir, 8,730 AFY. Of that amount, 4,530 AFY are for pipeline deliveries and 4,200 AFY are reserved for downstream releases. The dam, terminal reservoir, treatment and conveyance facilities are a part of Flood Control Zone 3.

There are two reports under development that relate to Zone 3 operations and water supply management. The Arroyo Grande Habitat Conservation Plan addresses downstream releases and coordination of reservoir storage operations with ecosystem needs and water rights. Additionally, a study is being conducted to consider the feasibility of modifying the dam to augment capacity of the reservoir.

The agencies that contract for Lopez water in Zone 3 include the communities of Oceano, Grover Beach, Pismo Beach, Arroyo Grande, and County Service Area (CSA) 12 (including the Avila Beach area).

2.2.9 WPA 7 – Nipomo Mesa Management Area

The Nipomo Mesa Management Area (NMMA) is part of the Santa Maria Valley groundwater basin adjudicated area. Basin groundwater users in the NMMA include Golden State Water Company, Rural Water Company, Woodlands, ConocoPhillips, Nipomo Community Services District, Lucia Mar Unified School District, small public water systems (serving residential, industrial and nursery/greenhouse operations), and commercial, agricultural and residential overlying users.

The Nipomo Mesa area is currently in a certified Level of Severity III for water supply (resource capacity has been met or exceeded), as defined by San Luis Obispo County. The

County's Level of Severity III led to the preparation of a water conservation ordinance (SLO County Code, Title 8 Chapter 8.92, effective September 25, 2008).

The NMMA Technical Group has established a groundwater monitoring plan that uses coastal and inland key wells to assess the condition of the basin. The 2008 Annual Report indicates that a potentially severe water shortage condition exists. This condition calls for voluntary actions under a response plan, with recommendations to draft a Well Management Plan and a conceptual plan to identify specific actions to be taken (NMMA Technical Group, 2009). Efforts to better understand groundwater conditions in the NMMA continue, and in addition to the monitoring and reporting requirements described in the Stipulation, representatives from the NMMA frequently meet and coordinate with representatives from the Northern Cities Management Area and the SMVMA through the SMVMA's Technical Subcommittee.

2.2.10 WPA 4, 6, 13 and 14 - Nacimiento Water Supply Project

The Nacimiento Dam was constructed in 1957 by Monterey County Flood Control and Water Conservation District (now known as the Monterey County Water Resources Agency (MCWRA)). The dam and reservoir continue to be operated by MCWRA. The lake has a capacity of 377,900 acre feet and a surface area of 5,727 acres. Water is collected from a 324 square mile watershed that is comprised of grazing lands and rugged wilderness.

In 1959, the District secured the rights to 17,500 AFY from Lake Nacimiento, with 1,750 AFY reserved for lakeside users and the Heritage Ranch Community Services District (CSD). After a long series of studies and negotiations, the Nacimiento Water Project (NWP) was initiated. The NWP is the single largest project that the District has ever undertaken. The total project cost, including design, construction, construction management, environmental permitting, and right-of-way, is approximately $176 million. Raw water deliveries recently began in 2010, with the City of San Luis Obispo taking first water deliveries at the Stenner Creek WTP.

Current NWP subscribers have contracted for a total of 9,655 AFY of the available 15,750 AFY, and include:

- WPA 4, CSA 10A (via exchange)
- WPA 6, City of San Luis Obispo
- WPA 13, Templeton CSD, Atascadero MWC
- WPA 14, City of Paso Robles

Heritage Ranch CSD's allocation of Nacimiento Reservoir water of 1,100 AFY is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area. It is sufficient to provide water for build-out demand, but the configuration of the delivery system (drawing from the river downstream of the Nacimiento Dam) leaves the Heritage Ranch CSD vulnerable to a cut off of its water supply in an extreme drought. Heritage Ranch CSD,

under mandate by California Department of Public Health, is currently in the process of developing an emergency water supply project. As part of this project, the County of San Luis Obispo and County of Monterey are currently in the process of reviewing water rights and operational issues of Nacimiento Dam under such drought conditions when the lake levels reach dead pool elevation (elevation at which water no longer can be released by gravity through the dam).

2.2.11 WPA 13 and 14 - Paso Robles Groundwater Management Plan and Basin Agreement

2.2.11.1 Paso Robles Groundwater Management Plan

The Paso Robles Basin Regional Groundwater Management Plan (Groundwater Management Plan) was prepared coincident with other ongoing studies to develop a stakeholder-driven voluntary plan to provide a framework for future groundwater management activities. This project was funded by a grant from the Local Groundwater Assistance Act of 2000 (California Water Code Section 10795 et seq.) to provide grants to public agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities.

The purpose of the Groundwater Management Plan is to develop a common understanding of the groundwater issues and management opportunities in the Paso Robles Basin and identify and support projects such as conjunctive use, recycled wastewater, and demand management, which will improve groundwater management. Following development of the Groundwater Management Plan, the goal is to implement the activities identified in the plan to achieve the Basin Management Objectives that are identified in the plan.

The effects of these groundwater management activities are expected to result in changed groundwater conditions, which are monitored and reported to the agencies, interested parties, and stakeholders.

2.2.11.2 Paso Robles Groundwater Basin Agreement

The Agreement was entered into on August 19, 2005 by the District, several overlying landowners who have organized as the Paso Robles Imperiled Overlying Rights (PRIOR) group, and the City of Paso Robles and County Service Area No. 16 (collectively referred to as Municipal Users). Since 2005, additional overlying landowners and the San Miguel Community Services District, as a Municipal User, have also signed the Agreement. The Agreement requires the District to declare the Paso Robles Groundwater Basin to be in a state of overdraft, when appropriate, at which point a period of time is conferred to allow overlying landowners sufficient time to react to such a declaration. In the Agreement, the District serves as the technical advisor to both the Landowners and Municipal Users.

The Agreement recognizes the need for monitoring and appropriate management of the existing basin supplies and also recognizes that bringing additional water resources to the basin could delay or avoid entirely the Paso Robles Groundwater Basin becoming

overdrafted in the future. The Agreement also recognizes signatories' desire to preserve their respective groundwater rights, notwithstanding implementation of any management measures, thereby providing the framework for cooperation among the Landowners and Municipal Users to participate in the development of a groundwater management plan.

2.3 RESOURCE AGENCIES

This section discusses and recognizes the roles of the non-purveyor type entities (i.e. State agencies, agricultural groups, and environmental groups) that have some involvement in water resources management/issues, such as resource conservation districts, the Central Coast Regional Water Quality Control Board (Region 3) and State Water Resources Control Board, State Department of Water Resources (DWR), Morro Bay Estuary program, Central Coast Vineyard Team, San Luis Obispo County Farm Bureau and others. It is important to understand their influence and involvement on water resources management efforts within the County, and that they have either contributed to the development of this Master Water Report, or should be coordinated with in future efforts to better understand the conditions in different water planning areas.

2.3.1 State Agencies

DWR – The State DWR mission statement is "To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments." DWR programs and roles include development and implementation of the California Water Plan, grant program administration, conservation and urban water management planning regulation, groundwater basin and watershed planning/management, State Water Project ownership and operation, and a number of other functions. Excerpts from the California Water Plan are utilized in the Water Management Strategies discussion of this MWR.

State/Regional Water Board – The State Water Board's mission is to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations. The Water Boards regulate wastewater discharges to surface water (rivers, ocean, etc.) and to groundwater (via land). The Water Boards also regulate storm water discharges from construction, industrial, and municipal activities; discharges from irrigated agriculture; dredge and fill activities; the alteration of any federal water body under the 401 certification program; and a number of other activities with practices that could degrade water quality. Their programs also address water rights, grant program administration, and guidance to assist with these efforts. From the State Board web site; programs offered by the State and Regional Board include biosolids, dredge/fill (401) wetlands, irrigated lands, land disposal (landfills, waste piles), waste discharge requirements (non-Subchapter 15), NPDES Surface Water, recycled water, sanitary sewer overflows, stormwater, and timber harvest activities.

2.3.2 Agricultural Organizations

These include, among others, the San Luis Obispo Coastal and Upper Salinas-Las Tablas RCDs, University of California Davis Cooperative Extension, San Luis Obispo County Farm Bureau, San Luis Obispo Cattlemen's Association, Paso Robles Wine Country Alliance, Central Coast Vineyard Team and entities representing particular crop types – each have a variety of roles which may include conservation and water quality efforts, data collection, special studies, policy review, and overall stakeholder review of issues.

2.3.3 Environmental Organizations

These include, among others, Central Coast Salmon Enhancement, Sierra Club, Morro Bay National Estuary Program and Coast Keepers - each have a variety of roles, which may include conservation and water quality efforts, data collection, special studies, policy review, and overall stakeholder review of issues.

PART II: AVAILABLE DATA

3.1 OBJECTIVES

The purpose of this chapter is to describe the existing data collection programs and the data available for completing the Master Water Report and for managing water resources in the County.

3.2 DATA COLLECTION EFFORTS OR PROGRAMS

Appendix A includes the Data Summary Memorandum prepared by Wallace Group and others. This memorandum summarizes the information used to determine existing and forecast water demands and available supplies. In addition to this memorandum, excerpts from the County's Data Enhancement Plan, which describes the County's water resources data collection network, are provided below.

3.2.1 Groundwater

Groundwater data has been collected for many years in the region. Primarily the San Luis Obispo County Flood Control and Water Conservation District (District) has been the lead agency to collect this information from water providers, local agencies, and land owners.

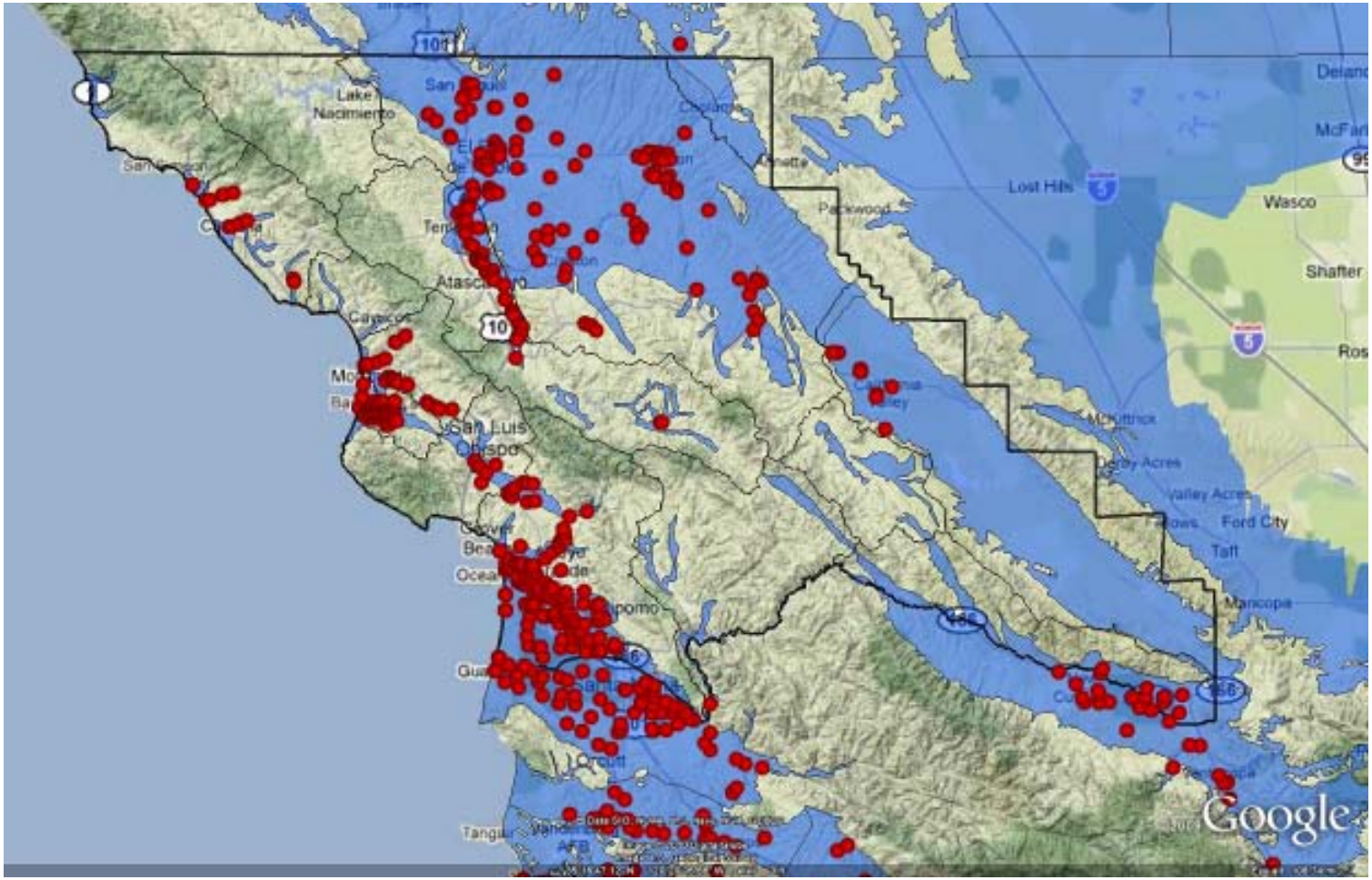
3.2.1.1 Water levels

Water levels throughout the region have been collected in the primary groundwater basins of the region, as shown in Figure 3.1. The colored regions delineate the defined groundwater basins of the region. Red circles indicate active well sites.

3.2.1.1.1 *District Groundwater Level Measuring Program*

Groundwater levels have been measured by the District in selected wells on a semi-annual basis to provide data for planning and engineering purposes. The monitored wells are located within groundwater basins and sub-basins of the Central Coast Hydrologic Region described in Department of Water Resources Bulletin 118. Program wells are selected based on aquifer definition and uniform aerial distribution.

The District maintains a database with hundreds of wells. Readings started in the early 1950s. Water level readings are taken in April and October. The groundwater elevation data obtained from this monitoring program collected over time provide a general indication of ground water basin conditions. This information is used in determining groundwater availability and basin yield estimates, and for hydrogeologic and geotechnical impacts and assessment studies on potential projects.



MEASURED REGIONAL GROUNDWATER WELLS

FIGURE 3.1

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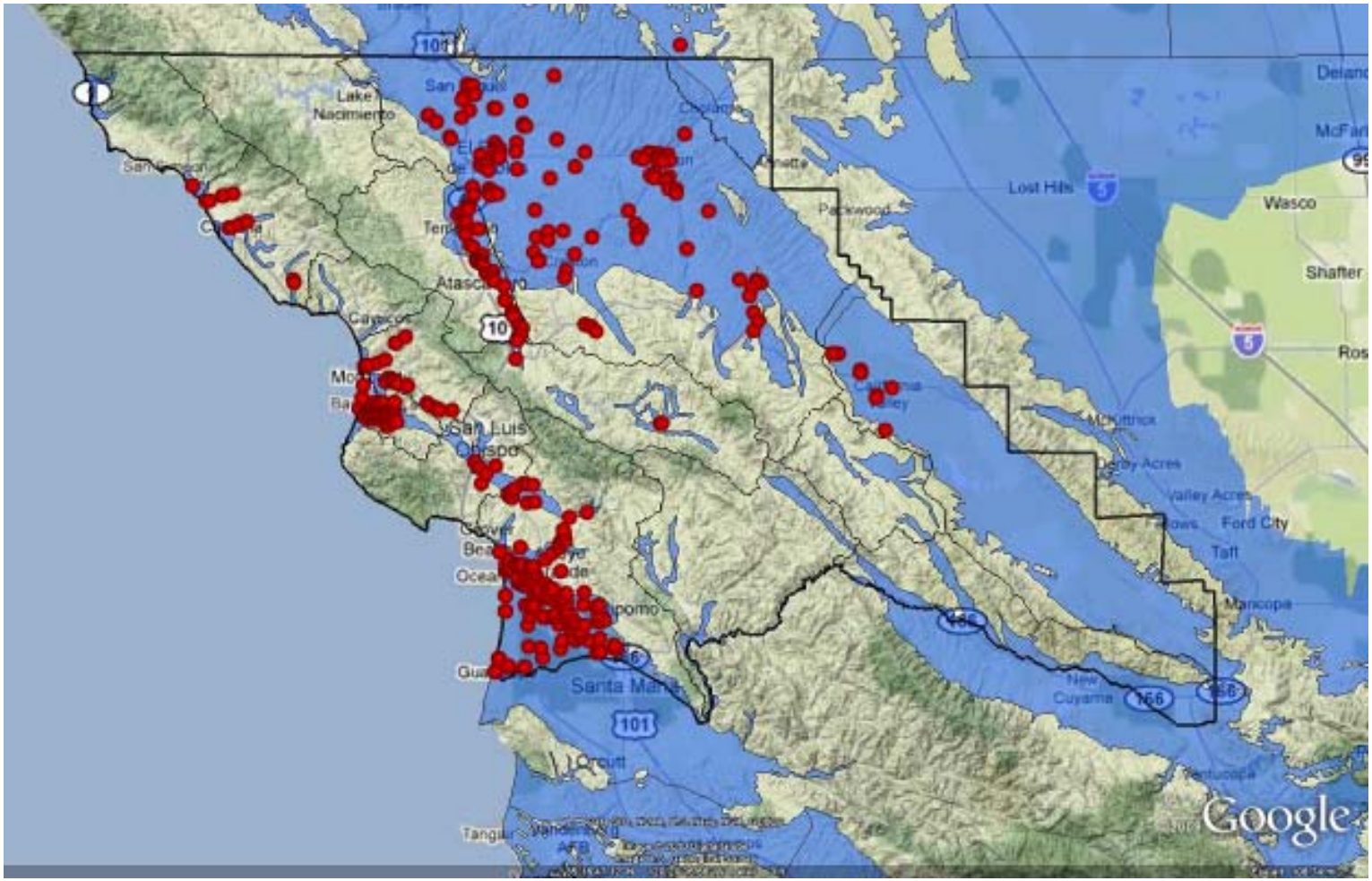
The Salinas River corridor of the Paso Robles Basin, Los Osos Valley, Nipomo Mesa, San Luis Obispo Valley, and the Tri-Cities Mesa have a large number of program wells because of their high population density. The Chorro Valley, Guadalupe hydrologic area, Morro Valley, Creston area, San Juan area, and Shandon areas have a large number of program wells because of their greater agricultural land use.

The current active wells measured in the region by the District, and the regional groundwater basins are shown in Figure 3.2. The majority of well owners participate on a voluntary basis and the wells are typically production wells, which create certain challenges with maintaining an accurate, long-term record, making information available to the general public and understanding the condition of every groundwater basin in the County. The District is initiating the development of a more formal groundwater monitoring program for approval by the Board of Supervisors and with elements that can be adopted by ordinance. The program will, at a minimum, address groundwater level and usage data collection. Effort to develop the program will include town-hall meetings to ensure stakeholder involvement. Issues to be addressed during the development of the program would include, but not be limited to, gaps in the existing monitoring network, voluntary versus non-voluntary participation, distinguishing how different users (urban, agricultural, rural) would be involved/affected/not affected, education and outreach, understanding what other amendments to County Code related to groundwater data collection are being developed, and the legal authorities of the County/District.

In early 2008, Cleath & Associates evaluated the San Luis Obispo County well measuring program. Their analysis recommended that 48 wells should be eliminated, and 66 wells should be added to the program. The total number of wells in the updated monitoring program would be 485 monitoring wells. Additionally, one well should be established in each of the un-gauged groundwater basins of the region. The following basins are currently un-gauged and should have at least one centrally located well:

- Arroyo De La Cruz Valley
- Big Spring Area
- Cayucos Valley
- Huasna Valley
- Old Valley
- Rafael Valley
- Rinconada Valley
- San Capoforo Valley
- Toro Valley



DISTRICT GROUNDWATER MEASURING PROGRAM

FIGURE 3.2

3.2.1.1.2 *U.S. Geological Survey*

The USGS measures depth to groundwater in thousands of wells throughout the Nation. Their groundwater database contains records from about 850,000 wells that have been compiled during the course of ground-water hydrology studies over the past 100 years.(Figure 3.3)

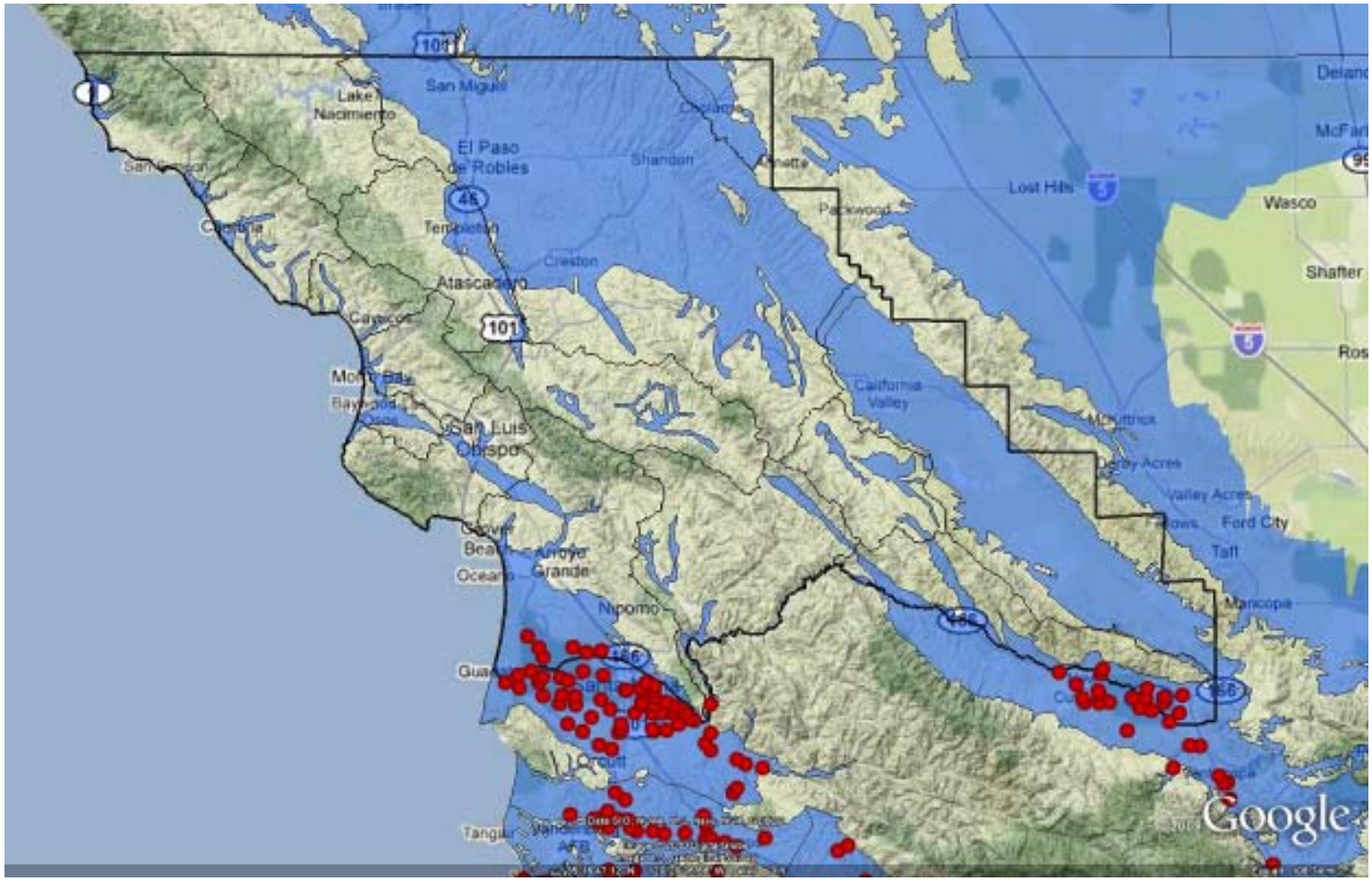
The USGS is responsible for measuring the wells in Santa Barbara County's groundwater program. Locally, only a few wells are measured by the USGS, all of which are located on the southern county border in the vicinity of Santa Maria and Cuyama. Information from these wells is served via the internet through NWISWeb, the National Water Information System Web Interface. NWISWeb provides all USGS ground-water data that are approved for public release. More information can be found at: http://waterdata.usgs.gov.

3.2.1.2 Geologic Data and Well Logs

Perhaps thousands of well logs are on file for locations throughout the county, and legislators are currently working on legislation to clarify the availability of well log information to the public. The County's Environmental Health Department is responsible for the collection of well log information as a part of its permitting process. Some well logs are also on file at both the County Public Works Department and the State Department of Water Resources.

Well construction data may not be available for all wells currently included in the monitoring network. Downhole surveys of some of the existing wells currently being monitored could be conducted to obtain construction details and determine which aquifers are being monitored. These downhole surveys would improve the understanding of the groundwater levels and groundwater movement in the area of the well.

For wells without construction records, video logs could be performed during pump maintenance. Recent technology developments allow down-hole investigation of wells without having to remove their pumps and can provide a video survey to determine their screen intervals; estimate the amount of flow contributed by aquifer (allowing the aquifer characteristics to be estimated) and collect water quality samples by aquifer. These video surveys do have limitations due to the pump column being in the well during the survey. The well owner could notify the District and the well logging service to coordinate these efforts with their pump maintenance.



U.S. GEOLOGICAL SURVEY
WELL MEASURING PROGRAM

FIGURE 3.3

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND
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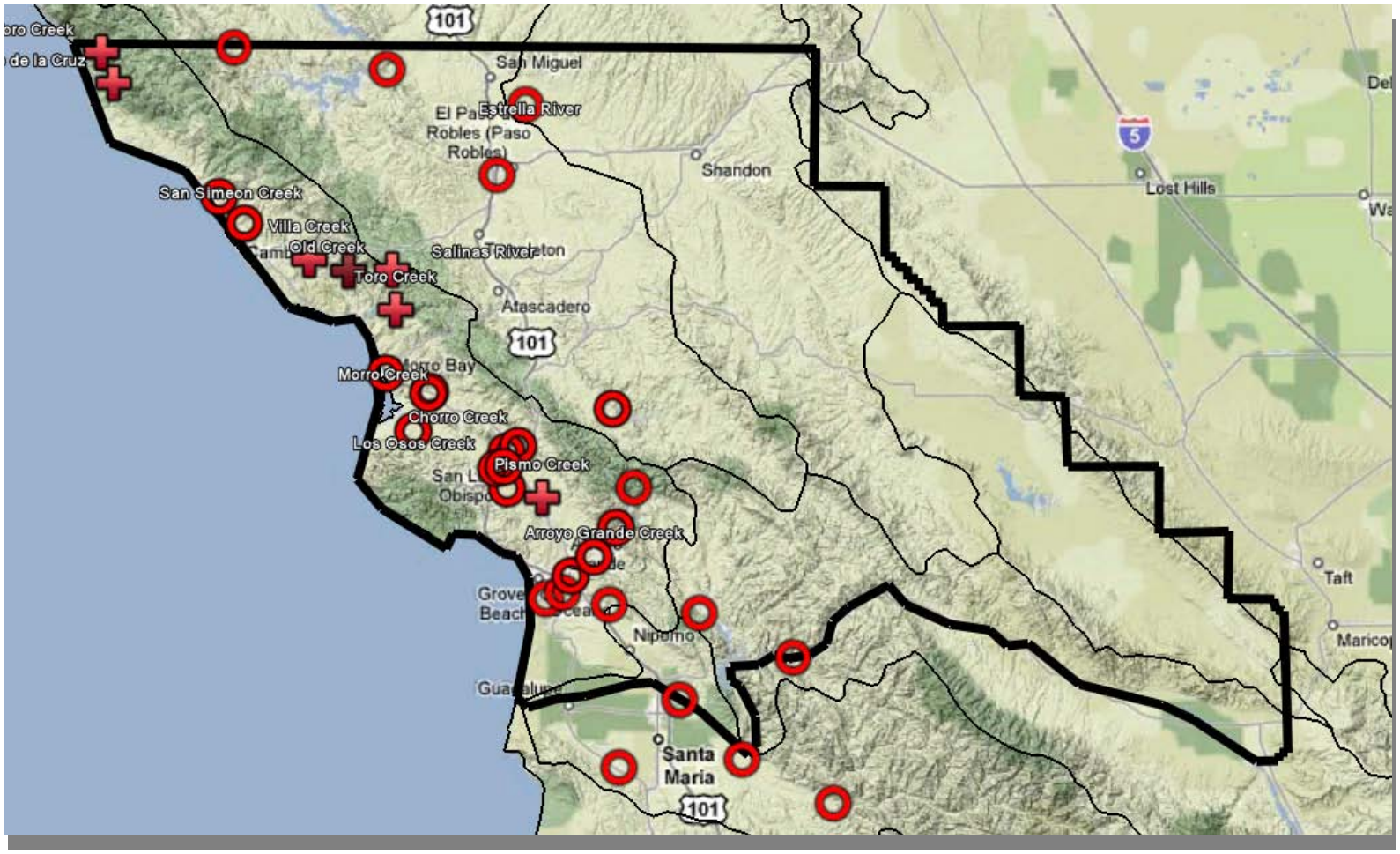
3.2.2 Stream Flow

Water levels are typically collected in streams as part of a stream flow monitoring program. In addition, water levels are also collected in streams to support flood protection activities, and in reservoirs to assist with daily operations.

The major streams and rivers in the region include:

- Arroyo De La Cruz Creek
- Arroyo Grande Creek*
- Cayucos Creek
- Chorro Creek*
- Estrella River*
- Los Osos Creek*
- Morro Creek*
- Old Creek
- Pismo Creek
- Salinas River*
- San Capoforo Creek
- San Luis Obispo Creek*
- San Simeon Creek*
- Santa Rosa Creek*
- Toro Creek
- Villa Creek

The streams marked with an "*" indicate streams that have current gauge stations, and are shown as red circles in Figure 3.4 on the next page.



STREAM WITH CURRENT GAUGE STATIONS

FIGURE 3.4

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There are seven major streams in the region that do not currently have stream gauges, as suggested in the above figure. Those streams are marked by a red cross (“+”) on the map above. (Existing streams are marked by a red circle.) Those streams include:

- Arroyo De La Cruz Creek
- Cayucos Creek
- Old Creek
- Pismo Creek
- San Capoforo Creek
- Toro Creek
- Villa Creek

In order to measure stream flow at the outlet of each Hydrologic Catalog Unit within the region, stream gauges should be placed at the outlet of each of the above creeks. The Salinas River, Santa Maria River, and Estrella River watersheds all have USGS stream gauges that measure streamflow from their respective accounting units. When adding new sites to the stream network, using past, inactive gauges, which may have a period of record that will complement any new data collected, should be considered.

Once each major stream in the region has a stream gauge, it would be worthwhile to gauge some of the smaller tributaries and creeks in the region. County basins that would significantly benefit from enhanced stream flow monitoring conducted for land use and water resources planning include the Paso Robles Basin, San Simeon Basin, Santa Rosa Basin, Los Osos Basin, San Luis Obispo/Edna Valley Basin, Arroyo Grande Basin, Nipomo Mesa Basin, and the Santa Maria Basin. When enhancing the monitoring in these regions, placing gauges on major creeks near the confluence with significant tributaries, on some smaller streams and tributaries, and at major cities along the major creeks should be considered.

To manage water resources for "in-stream" values and functions such as recreation, aesthetic enjoyment, and habitat for aquatic ecosystems, it is important to measure the stages of streams in the region. The recommendations above meet this data requirement. To understand the regional natural flow regime, there should be a number of stream gauges in natural watersheds. The recommendations above meet this need.

An enhanced flood warning system may be used to some extent in many communities of the region. With adequate warning, property owners may have time to install flood gates or move valuable objects to higher ground. Unfortunately, times of concentration of creeks and rivers in the county are relatively short – only a few hours or less. A flood warning system would only allow enough time for the most basic preparations. Communities with historic flooding that may benefit from a flood warning system include Cambria and other north

coast communities, San Luis Obispo to Avila Beach, Five Cities/Arroyo Grande Watershed, Los Osos, Shandon, and old town Nipomo.

In particular, the following roads are consistently flooded in storm events and would benefit from the installation of a real-time stage gauge:

- Airport Road at the Estrella River in Paso Robles
- Buena Vista Drive at Huerohuero Creek in Paso Robles
- San Luis Bay Drive at San Luis Obispo Creek (near Monte Road towards Avila)
- Shell Creek Crossing near Shandon (flash floods potential)
- Turri Road in Los Osos (roughly 1.5 miles upstream of South Bay Drive)
- Upper Santa Rosa Creek Road in Cambria

There are two agencies that collect stream flow information in the region: District and the United States Geological Survey, as discussed below. Stream flow data is also collected on occasion through the Central Coast Ambient Monitoring Program (CCAMP), but only when water quality samples are collected. The CCAMP does not use permanent stream flow gauges.

3.2.2.1 District Stream Measuring Program

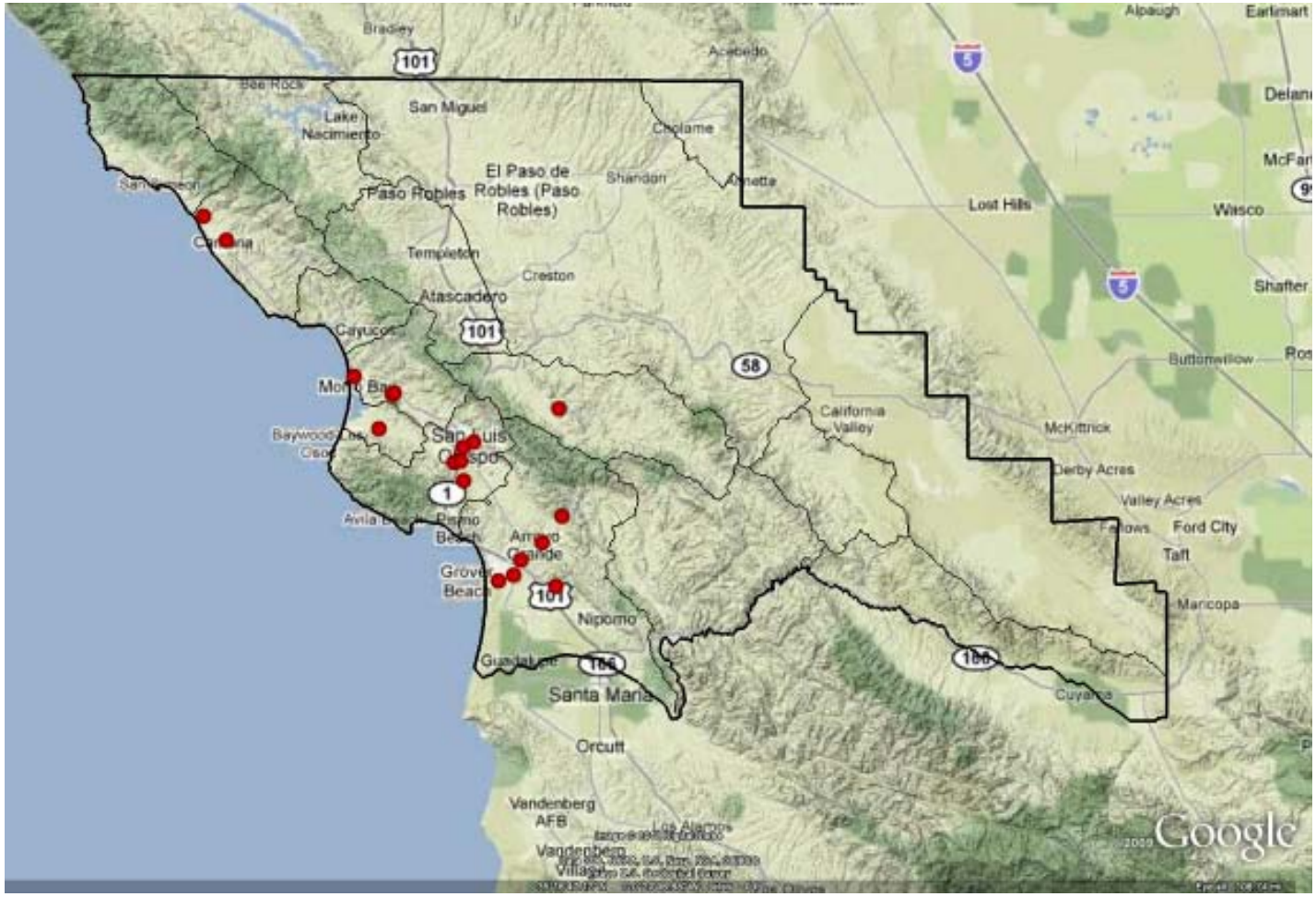
The District has records of various length from over 30 stream gauging stations, including six stations that were acquired from the USGS. Currently, 18 stream gauge stations located throughout San Luis Obispo County are maintained the County Public Works Department. Each of the gauge stations measure the depth of flow or “stage” of the stream which can be used to estimate the stream discharge at the gauge location.

These sites are maintained to support District reservoir operations, flood control, and other water resources purposes. Most of the District gauges are on coastal creeks and rivers, with the exception of one gauge on the Salinas River, just downstream of the Salinas Dam, as shown in Figure 3.5.

For more information of the District’s Stream Gauges, go to: http://www.slocountywater.org/site/Water%20Resources/Data/maps/stream-flow.htm.

3.2.2.2 U.S. Geological Survey Stream Gauging Program

The U.S. Geological Survey (USGS) stream gauging program provides streamflow data for a variety of purposes that range from current needs, such as flood forecasting, to future or long-term needs, such as detection of changes in streamflow due to human activities or global warming. The development of data on the flow of the Nation's rivers mirrors the development of the country. From the establishment of the first stream gauging station operated by the USGS in 1889, this program has grown to include 7,292 stations in operation as of 1994. Data from the active stations, as well as from discontinued stations,



SAN LUIS OBISPO COUNTY STREAM MEASURING PROGRAM

FIGURE3.5

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are stored in a computer data base that currently holds mean daily-discharge data for about 18,500 locations and more than 400,000 station-years of record. The stream-discharge data base is an ever-growing resource for water resources planning and design, hydrologic research, and operation of water resources projects.

The U.S. Geological Survey's National Streamflow Information Program (NSIP) operates and maintains approximately 7,500 stream gauges which provide long-term, accurate, and unbiased information on streamflow to meet the needs of many diverse users. The mission of NSIP is to provide the streamflow information and understanding required to meet local, State, regional, and national needs.

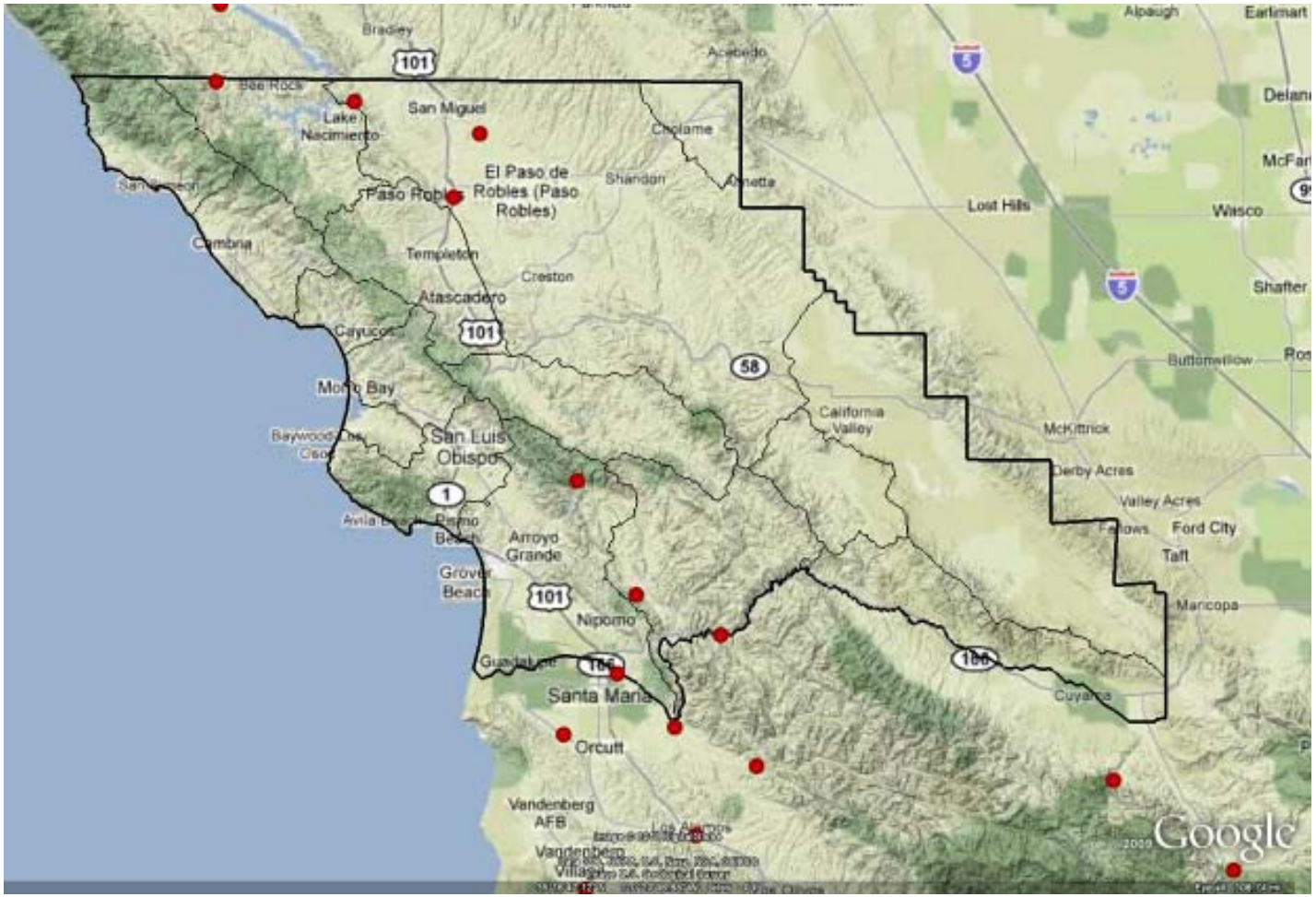
Streams maintained by the USGS tend to be on inland streams and rivers, and are typically funded, at least in part, at a local level. Most stream gauges in the region, if not all, support local reservoir operations (Figure 3.6).

3.2.3 Precipitation

Many agencies collect precipitation data in the region. The major rain gauge networks are shown on Figure 3.7 and discussed below.

3.2.3.1 District Recording Rain Gauge Program

There are a number of recording rain gauges in operation in the County. These gauges provide a record of accumulated precipitation versus time. The District Recording Rain Gauge network consists of 13 recording gauges located throughout the region. The distribution and density of recording rain gauges in the region is fairly limited, and noticeably lacking in the northern and eastern part of the region (Figure 3.8).



USGS STREAM GAUGE SITES

FIGURE 3.6

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
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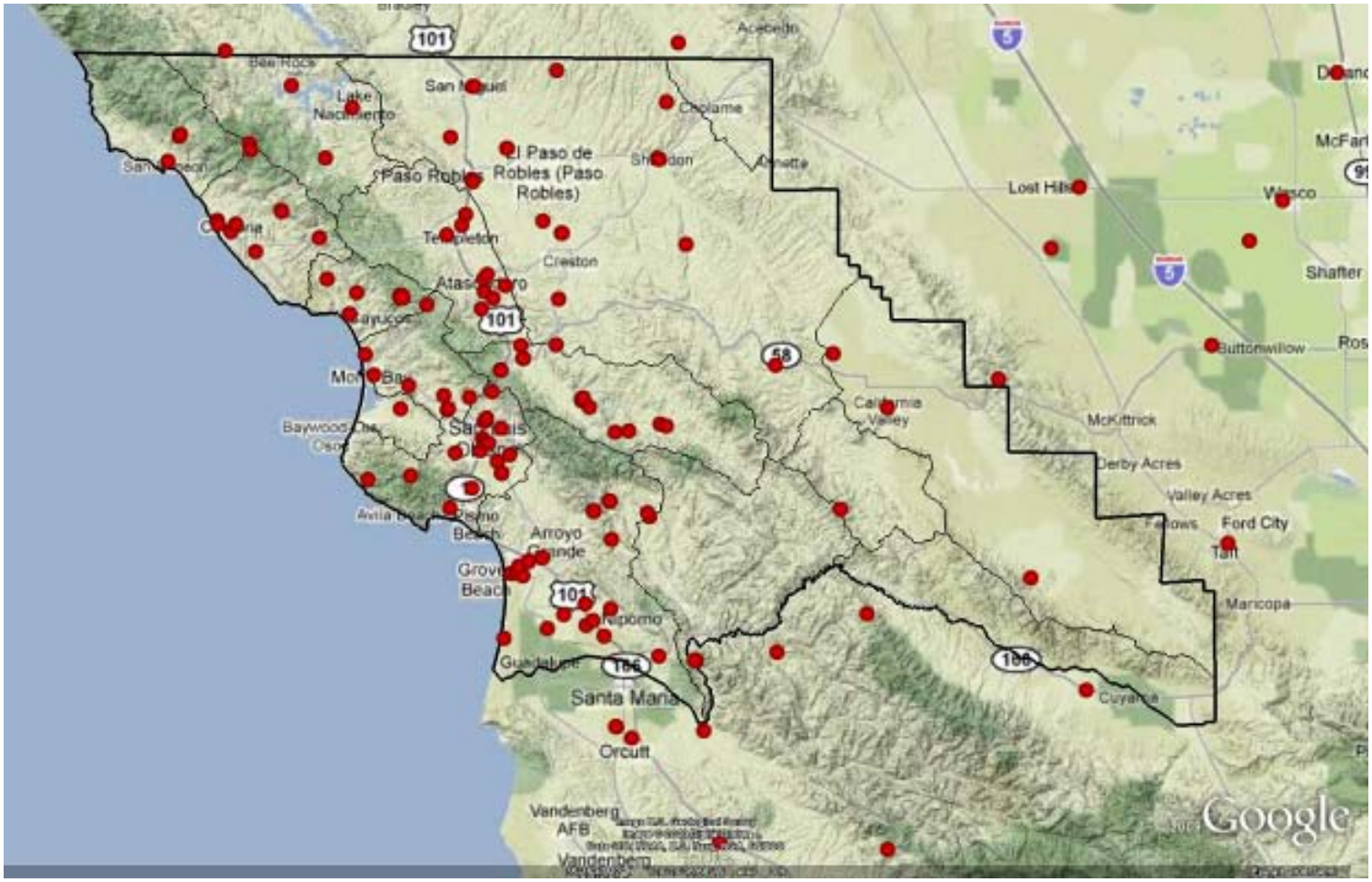

REGIONAL RAIN GAUGE NETWORK

FIGURE 3.7

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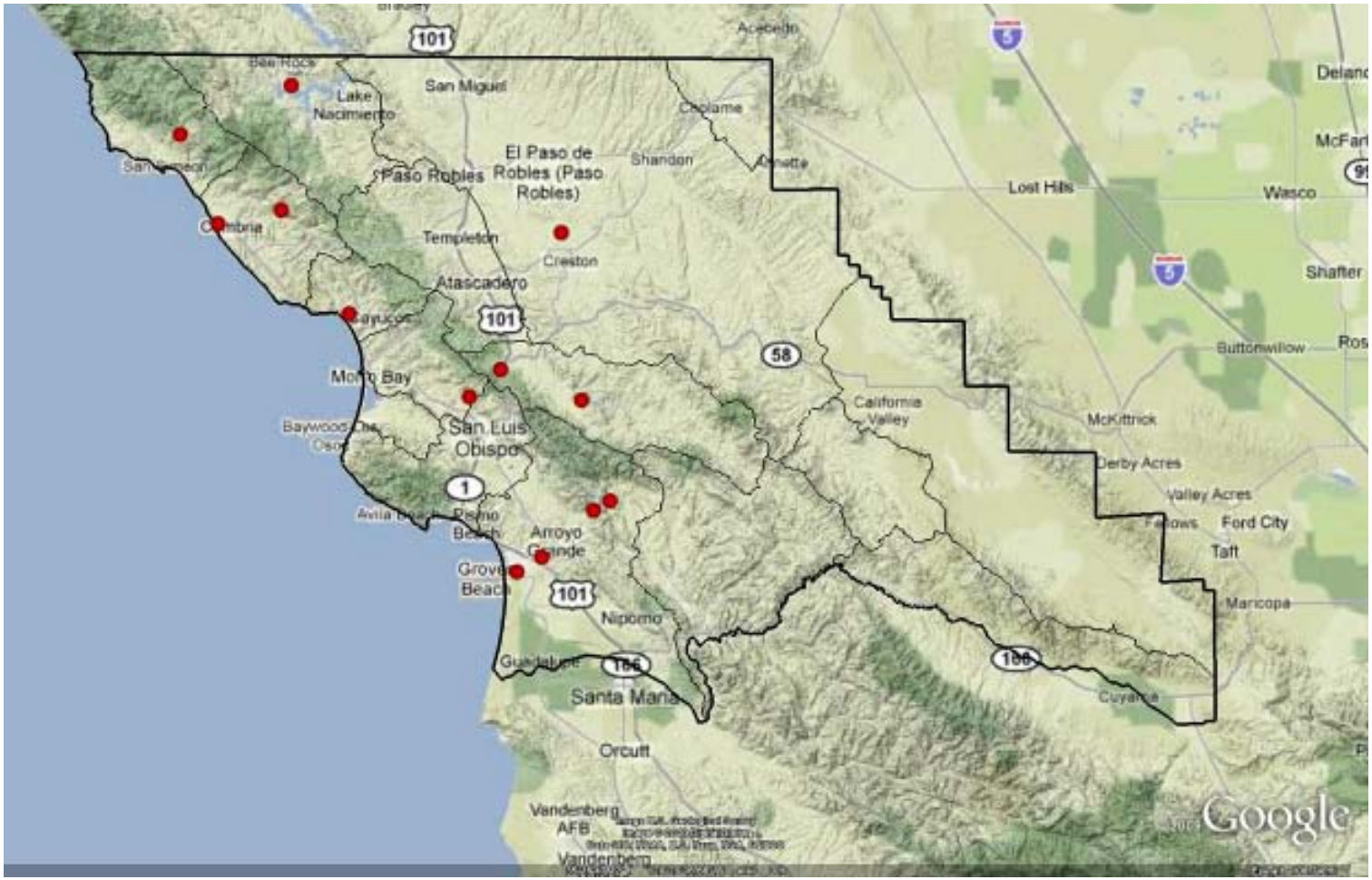


COUNTY RECORDING RAIN GAUGE DISTRIBUTION

FIGURE 3.8

It is recommended that recording rain gauges be installed in the following areas:

- Avila Beach
- Baywood/Los Osos
- California Valley (rural area and community area)
- Cholame
- Grover Beach
- Halcyon
- Harmony
- Pismo Beach
- San Simeon
- Santa Margarita
- Shandon (rural area and community area)
- Templeton

Another three (3) standard rain gauges in Pismo Beach, and one each in Paso Robles, Atascadero, Los Osos and Nipomo are recommended to improve the density of information.

3.2.3.2 District Volunteer Precipitation Program

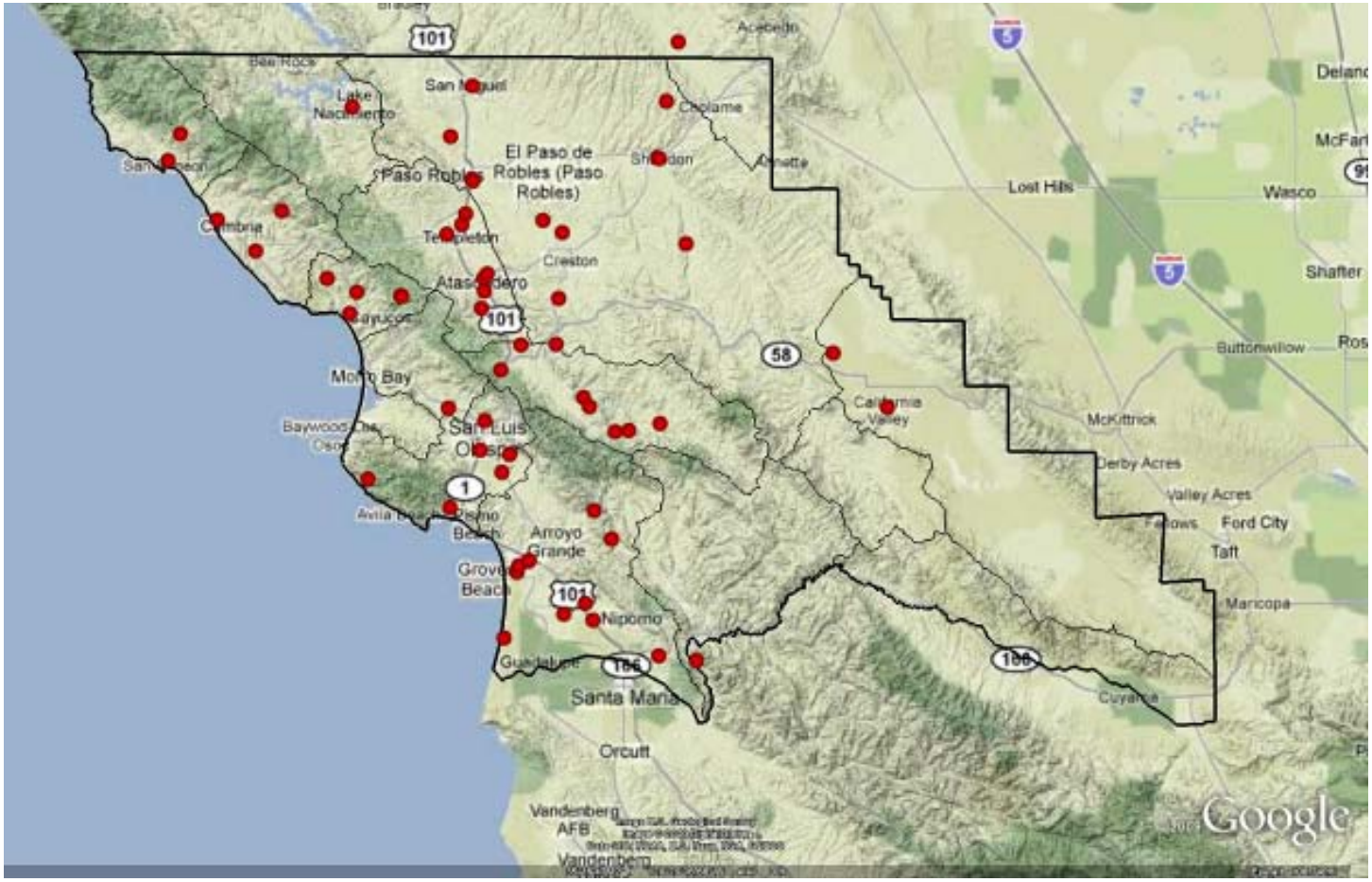
Precipitation data from approximately 50 stations throughout San Luis Obispo County are collected by the County Public Works Department. These records are usually in the form of daily entries of the precipitation occurring during the preceding 24-hour periods. These daily records are summarized in monthly totals.

Volunteer rain gauges are generally operated at-will, by regional residents, business owners, or local agencies. The volunteers independently collect precipitation data and provide it to the District or other agency on an annual basis.

There are a significant amount of volunteer rain gauges in the region, particularly in urban and suburban areas. As with the District recording rain program, the east portion of the region is particularly under represented (Figure 3.9).

3.2.3.3 District ALERT Rain Gauge Program

ALERT is an acronym for Automated Local Evaluation in Real Time, which is a method of using remote sensors in the field to transmit environmental data to a central computer in real time. This standard was developed in the 1970's by the National Weather Service and



COUNTY VOLUNTEER RAIN GAUGE DISTRIBUTION

FIGURE 3.9

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has been used by the National Weather Service, Army Corps of Engineers, Bureau of Reclamation, as well as numerous state and local agencies, and international organizations (footnote 1).

The District ALERT System was developed in cooperation with the National Oceanic and Atmospheric Administration (NOAA) which is a primary user of the information. The District ALERT System consists of one computer base station located at the County Courthouse and radio repeaters that receive and retransmit telemetry from remote sensors located at various locations throughout the County.

Data from these gauges serves to provide real-time information to flood forecasters and engineers during storm events. Due to the inconsistency of ALERT data transmissions, historic data for these gauges is typically unreliable and/or unavailable. For key sites (Figure 3.10), the District has converted some ALERT gauges to recording rain gauges that will provide accurate time-series precipitation data. Additional ALERT gauges would be beneficial in the extreme northwest corner of the County, the Hearst Castle area, the Cayucos area and the Templeton area.

3.2.3.4 California Irrigation Management Information System (CIMIS) Stations

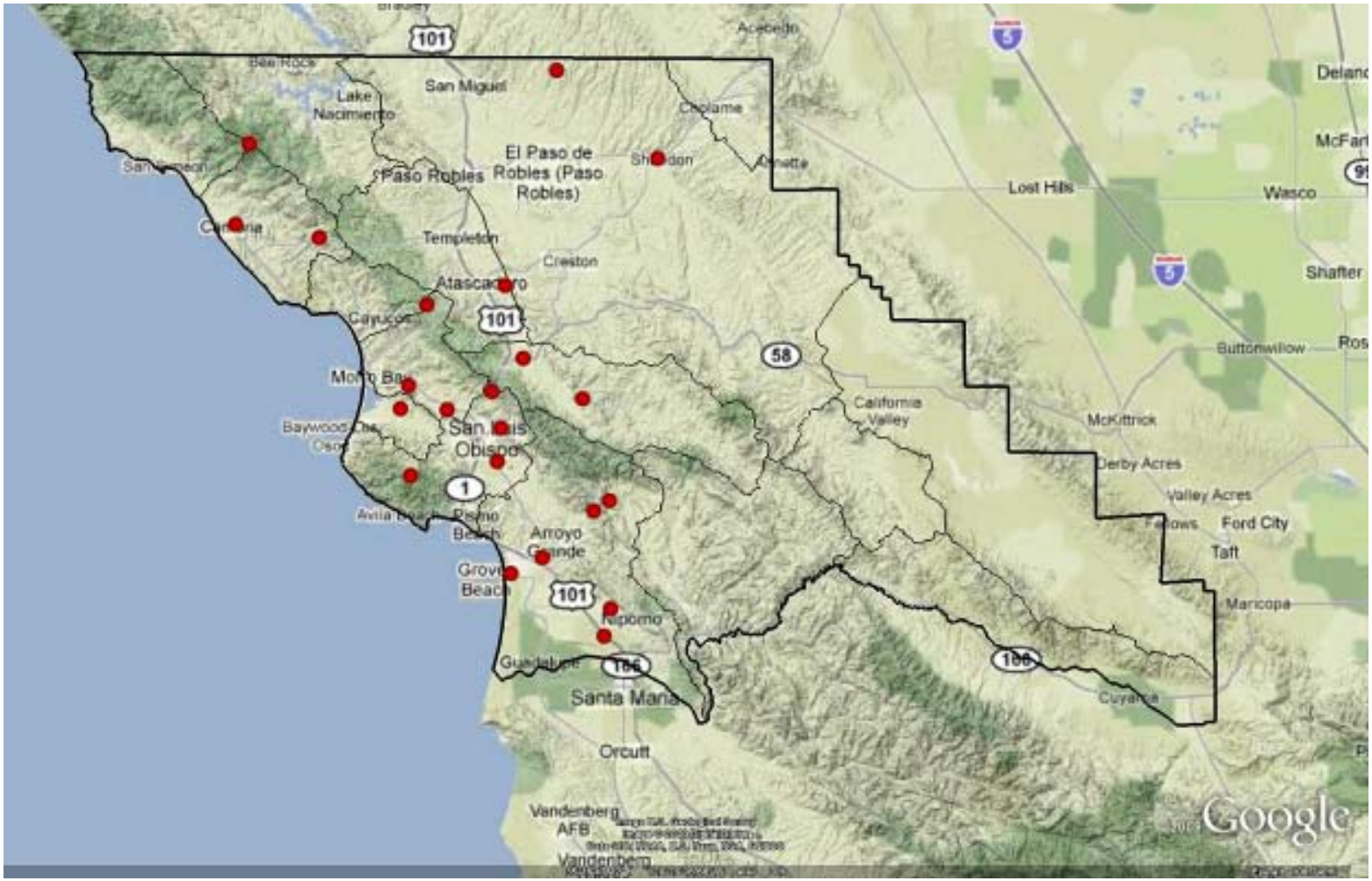
In 1982, through a joint research and development effort between UC Davis and DWR a computerized weather station system was established as a more cost effective method for estimating crop water use. This program was given the name "California Irrigation Management Information System" or CIMIS. In 1985, the administration and implementation of the program, and its further development, were turned over to DWR.

The California Irrigation Management Information System (CIMIS) is a program of the Office of Water Use Efficiency, California Department of Water Resources (DWR) that manages a network of over 120 automated weather stations in the state of California. CIMIS was developed to assist irrigators in managing their water resources efficiently. Efficient use of water resources benefits Californians by saving water, energy, and money.

The CIMIS stations gather climatic data (precipitation, temperature, humidity, solar radiation, etc.), which is used to calculate the evapotranspiration (ET). ET is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is an indicator of how much irrigation water is needed (or used) for healthy growth and productivity.

CIMIS stations are maintained by local agencies that use standard equipment and maintenance procedures. The data seems to be reliable, particularly for hourly rainfall information during storms.

[1] Descriptions of the ALERT system are based on information provided in the websites for Orange County and the World Meteorological Organization



DISTRICT REAL-TIME RAIN GAUGE NETWORK

FIGURE 3.10

As shown on the Figure 3.11, there are four (4) CIMIS stations currently in operation throughout the region. Those stations are located in southeast Atascadero, west of Nipomo, 6.5 miles northwest of San Luis Obispo, and on the Cal Poly Campus. To help estimate agricultural water use in each climatic region and to supplement evaporation data collected at reservoirs and by weather stations, it is recommended that two additional evaporation pans (or weather stations) are established around Cambria (or further north) and east of Paso Robles.

3.2.3.5 National Oceanic and Atmospheric Administration / National Weather Service Cooperative Observer Network

The National Weather Service Cooperative Observer Program (COOP) was formally created in 1890 under the Organic Act. Its mission is to provide observational meteorological data (usually consisting of daily maximum and minimum temperatures, snowfall, and 24-hour precipitation totals) and to provide observational meteorological data in near real-time to support forecast, warning and other public service programs of the NWS.

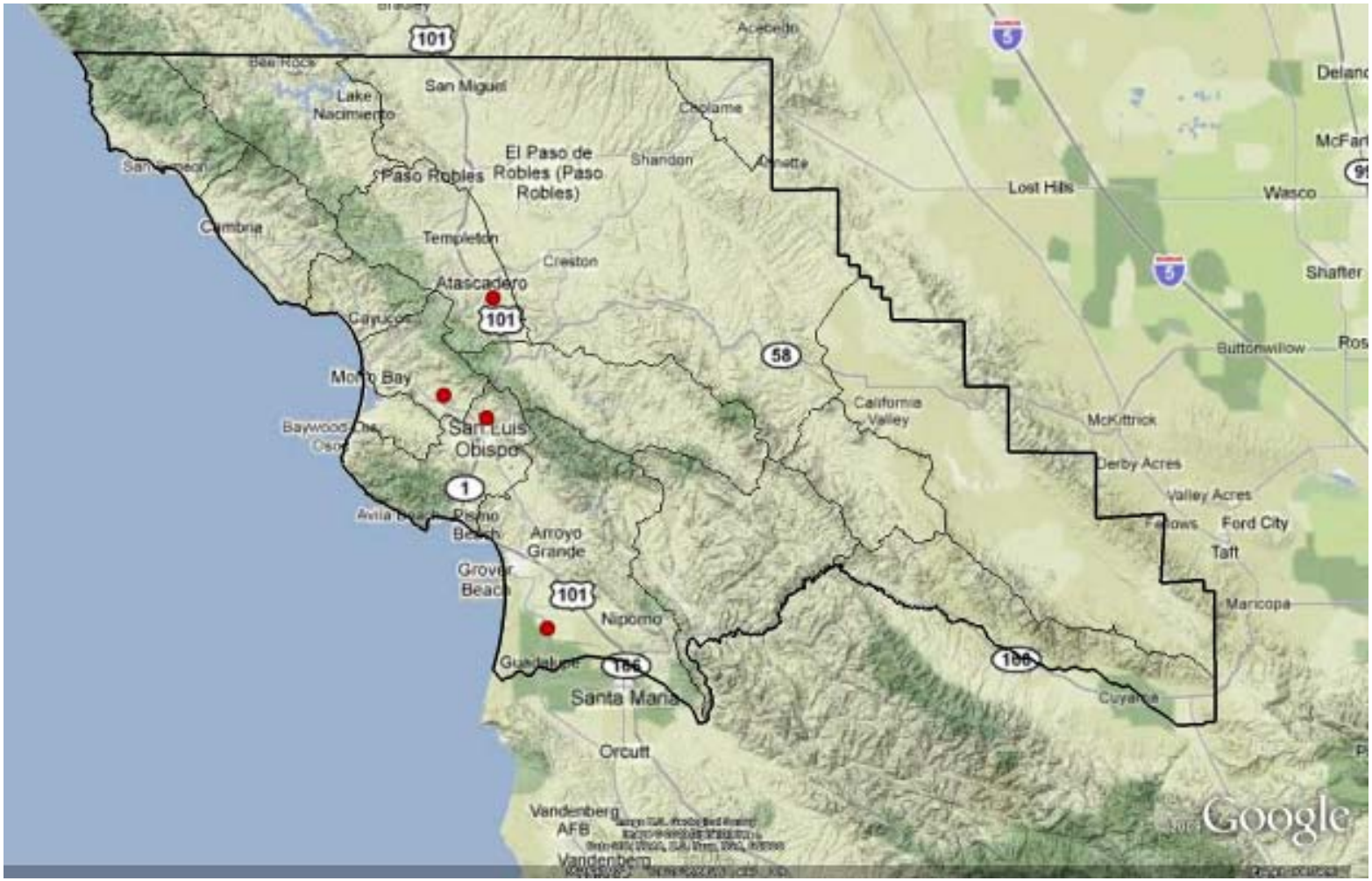
More than 11,000 volunteers take observations on farms, in urban and suburban areas, National Parks, seashores, and mountaintops. A cooperative station is a site where observations are taken or other services rendered by volunteers or contractors. A cooperative station may be collocated with other types of observing stations such as standard observations stations, Flight Service Stations, etc.

This network was established to provide near real-time data. Unfortunately, the historic dataset for many of these gauges is not complete. It is recommended that data from these gauges not be used for water resources planning. It should be noted that this is a generalization regarding gauges in this network, primarily since these gauges are maintained by different sorts of volunteers and there does not appear to be consistent data maintenance or reporting.

There are twelve active COOP stations in the region, as shown in Figure 3.12. More information about the COOP can be found at: http://www.ncdc.noaa.gov/oa/ncdc.html and at: http://www.nws.noaa.gov/om/coop/.

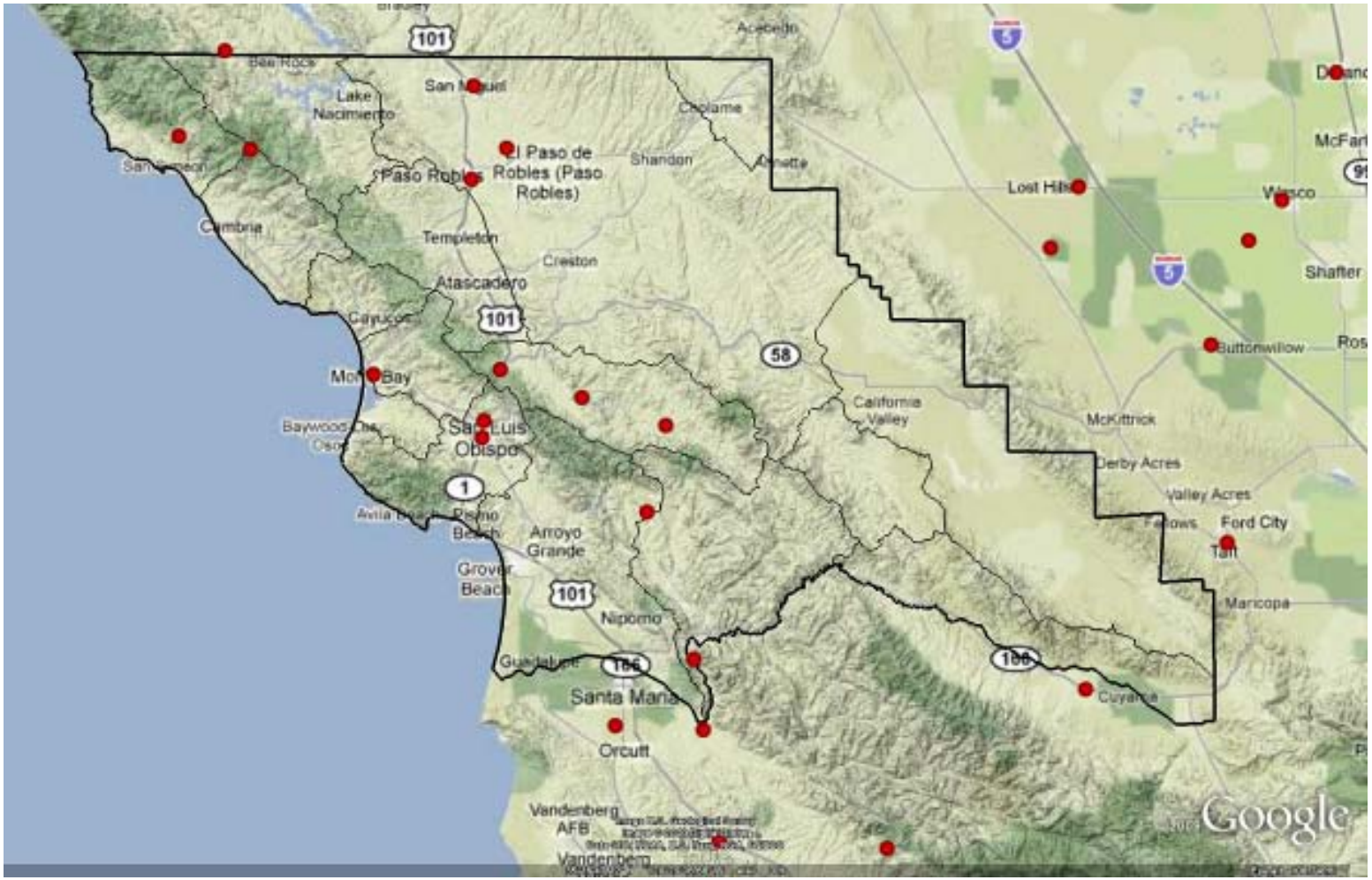
3.2.3.6 Citizen Weather Observer Program (CWOP)

The Citizen Weather Observer Program (CWOP) allows users with computerized weather stations to send their information via a website to be included into the United States Mesonet. This data is then used by the Rapid Update Cycle (RUC) forecast model to produce short term forecasts (3 to 12 hours into the future) of conditions across the United States' lower 48 states.



REGIONAL CIMIS GAUGES

FIGURE 3.11



REGIONAL COOP STATIONS

FIGURE 3.12

The CWOP is a private-public partnership with three main goals: 1) to collect weather data contributed by citizens; 2) to make these data available for weather services and homeland security; and 3) to provide feedback to the data contributors so that they have the tools to check and improve their data quality. In fact, the web address, www.wxqa.com, stands for weather quality assurance. There are over 6,000 registered CWOP members worldwide and roughly eight in the region.

CWOP is a group of ham radio operators and other private citizens around the country that have volunteered the use of their weather data for education, research and use by interested parties. The APRS-IS collects weather data transmitted from individual stations and communicates these data to the amateur radio findU server where the data are organized and made available to the MADIS Program at 15-minute intervals. The CWOP data also go to the MADIS Quality Control and Monitoring System (QCMS) which checks data quality using a variety of techniques. Based on these checks, data may be declared questionable. Occasional questionable data is normal. However, a high percentage of questionable data may indicate instrument or siting problems.

CWOP members send their weather data by internet alone and internet-wireless combination to the findU server and then every 15 minutes, the entire data set is sent from the findU server to the NOAA MADIS server. The data are checked for quality and then redistributed to users. There are over 500 different user organizations of mesonet data, including the National Weather Service (Figure 3.13).

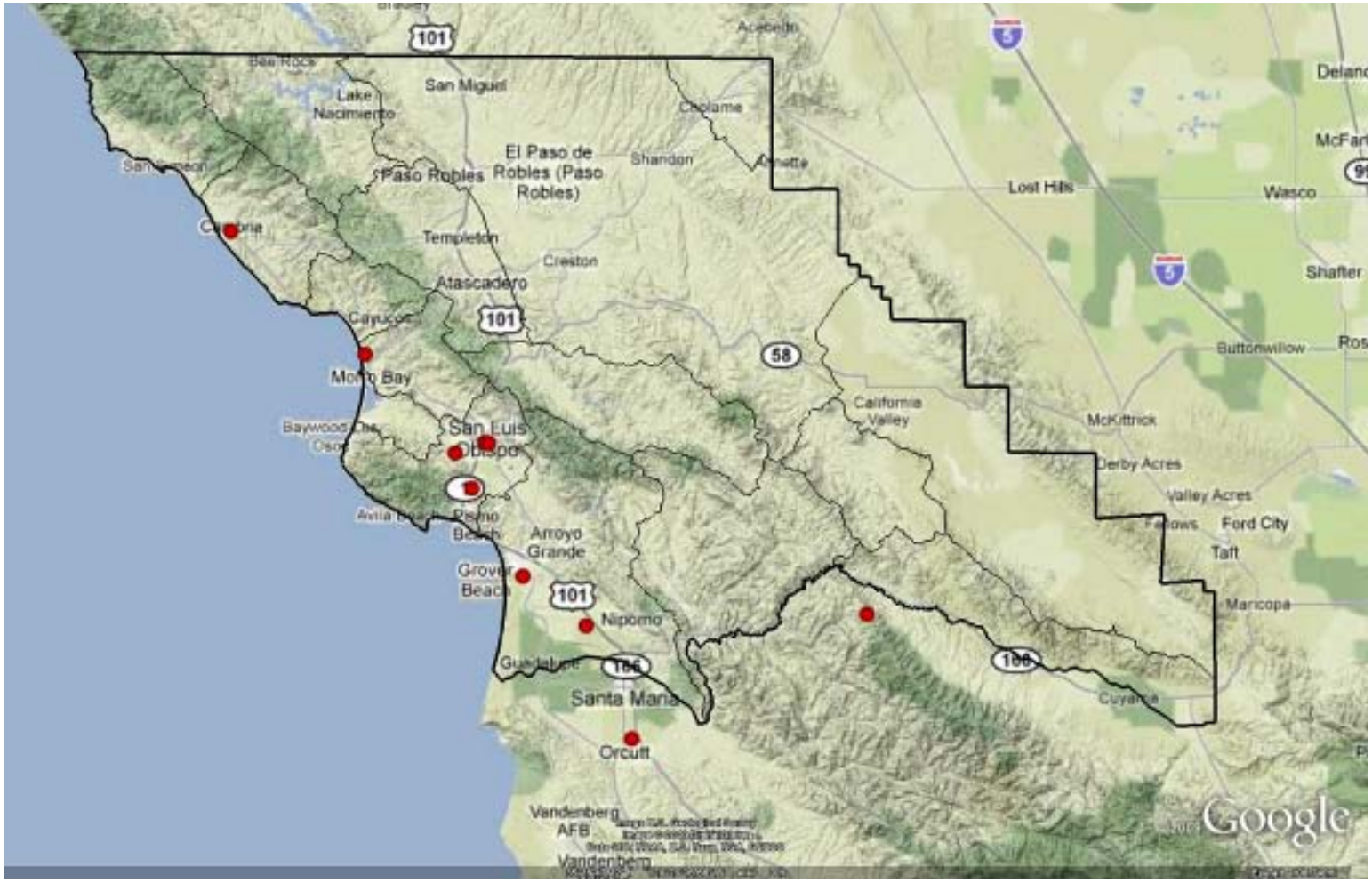
For more information on the Citizen Weather Observer Program, go to: www.wxqa.com.

3.2.3.7 Remote Automated Weather Station (RAWS) Gauges

There are nearly 2,200 interagency Remote Automated Weather Stations (RAWS) strategically located throughout the United States. These stations monitor the weather and provide weather data that assists land management agencies with a variety of projects such as monitoring air quality, rating fire danger, and providing information for research applications.

Most of the stations owned by the wildland fire agencies are placed in locations where they can monitor fire danger. RAWS units collect, store, and forward data to a computer system at the National Interagency Fire Center (NIFC) in Boise, Idaho, via the Geostationary Operational Environmental Satellite (GOES). The GOES is operated by the National Oceanic and Atmospheric Administration (NOAA). These data are automatically forwarded to several other computer systems including the Weather Information Management System (WIMS) and the Western Regional Climate Center (WRCC) in Reno, Nevada.

Fire managers use these data to predict fire behavior and monitor fuels; resource managers use the data to monitor environmental conditions. Locations of RAWS stations can be searched online courtesy of the Western Regional Climate Center.



CITIZEN WEATHER OBSERVER PROGRAM GAUGES

FIGURE 3.13

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
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The United States Forest Service and National Park Service use RAWS gauges for vegetation mapping, fire fuel mapping, fire risk estimates and fire detection, post-fire severity mapping, insect-infestation mapping, and relative water stress monitoring (Figure 3.14).

3.2.3.8 NWS Automated Surface Observing System (ASOS) Stations

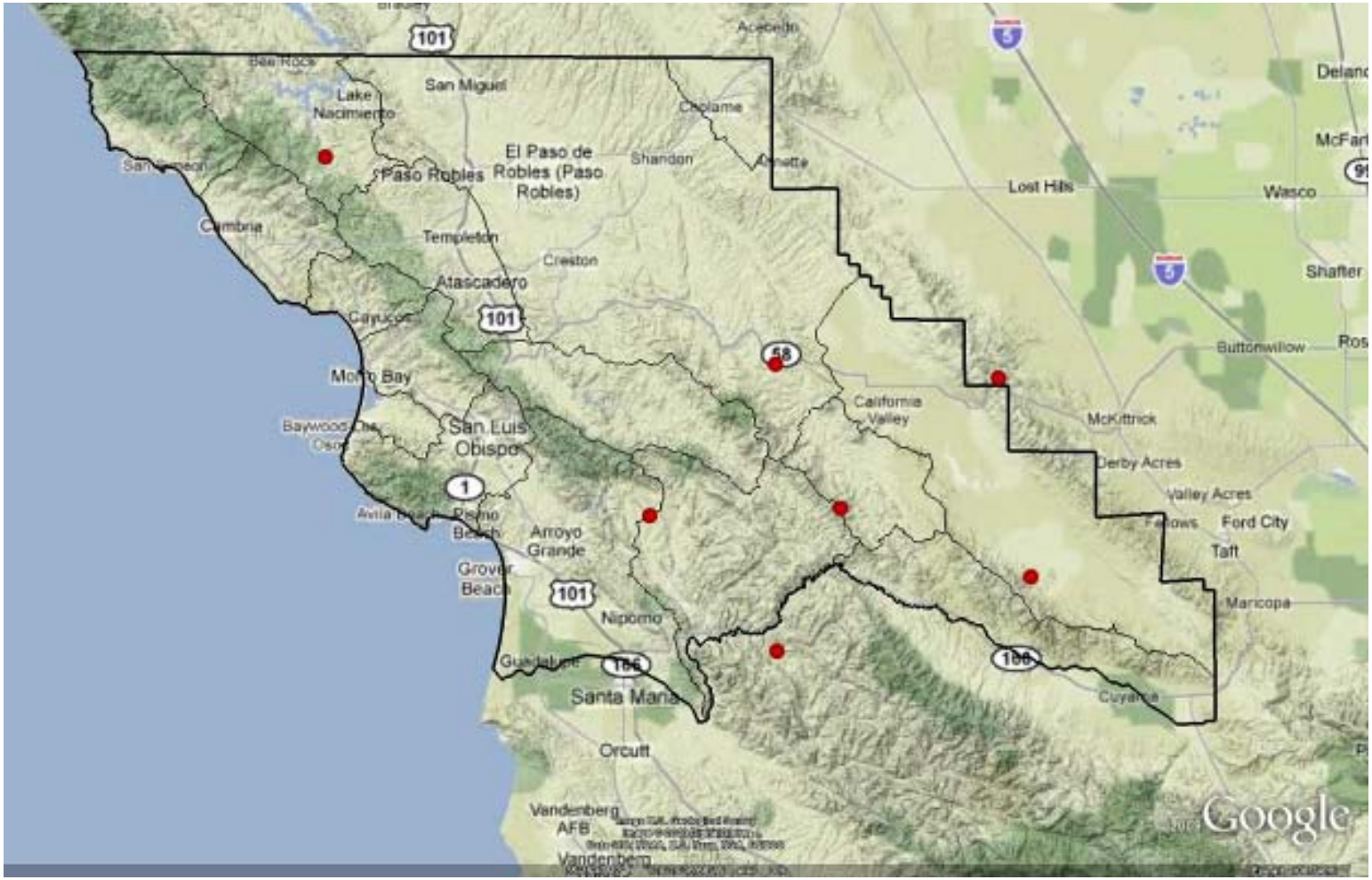
Federally funded, ASOS is a joint program of the National Weather Service, the Federal Aviation Administration, and the Department of Defense. The ASOS systems serve as the Nation's primary surface weather observing network. ASOS works non-stop, 24 hours a day, every day of the year. ASOS is installed at more than 900 airports across the country, where they make observations.

ASOS's constant stream of data benefits the forecast and research communities and promotes more accurate forecasts of all kinds.

ASOS reports the following basic weather elements:

- Sky conditions such as cloud height and cloud amount up to 12,000 feet,
- Surface visibility up to at least 10 statute miles,
- Basic present weather information such as the type and intensity for rain, snow, and freezing rain,
- Obstructions to vision like fog, haze, and/or dust,
- Sea-level pressure and altimeter settings,
- Air and dew point temperatures,
- Wind direction, speed and character (gusts, squalls),
- Precipitation accumulation, and
- Selected significant remarks including- variable cloud height, variable visibility, precipitation beginning/ending times, rapid pressure changes, pressure change tendency, wind shift, peak wind.

Besides serving aviation needs, ASOS serves as a primary climatological observing network in the United States, making up the first-order network of climate stations. Because of this, not every ASOS is located at an airport; for example, one of these units is located at Central Park in New York City and another is located on Cabbage Hill near Pendleton, Oregon, for the sole purpose of providing climatological observations.



REMOTE AUTOMATED WEATHER STATION (RAWS) GAUGES

FIGURE 3.14

Regionally, there are three ASOS systems. These stations are located at the Paso Robles, San Luis Obispo, and Santa Maria airports, as shown on Figure 3.15. For more information on FAA ASOS Stations, go to: http://www.faa.gov/airports_airtraffic/weather/asos/?state=CA.

3.2.3.9 National Weather Service Precipitation Forecasts (QPF)

The generation of increasingly accurate quantitative precipitation forecasts (QPFs) has been identified as a top priority of the National Weather Service and United States Weather Research Program. The primary applications of QPFs are:

- Flood forecasting,
- Water resource management, and
- Prediction of significant snowfall.

In light of the devastating socioeconomic impacts of flash and river flooding and significant snowfall, QPFs have emerged as a critical facet of the end-to-end forecast process. Timely and accurate flood and winter storm forecasts are essential for the preservation of life and property. In an average year, the number of fatalities and property damage owing to flash and river flooding exceeds that for all weather-related natural phenomena. Although the death toll associated with heavy snow events is typically small, heavy snow can cripple transportation and often has a prolonged economic impact.

Improving QPF and its effect on flood forecasting and water resource management is being recognized as an immense challenge, and will require that the academic and research communities be engaged through the Collaborative Science, Technology, and Applied Research Program and the United States Weather Research Program. Progress in QPF, especially in flash-flood forecasting, will require better understanding of cloud microphysical processes and of land-surface-atmospheric interactions, improved measurements of atmospheric water vapor, better understanding of the dynamics of mesoscale convective systems, better parameterizations of cloud turbulent and microphysical processes, and further development of mesoscale numerical models.

In addition to the many scientific issues relating to QPF, there are also issues in provision of improved, real-time service to users, not the least of which involves the interaction of the important components of the modernized National Weather Service, including the National Centers for Environmental Prediction (NCEP), the Weather Forecast Offices (WFOs), and the River Forecast Centers (RFCs) that constitute an end-to-end forecast process. Several years ago, an operations concept was developed for the production and use of quantitative precipitation information in the modernized NWS. The next task is to develop a QPF implementation plan based on these concepts which accounts for the role of NCEP Service Centers, the WFOs and RFCs, and the implementation of Advanced Weather Interactive Processing System (AWIPS) (Figure 3.16).

FAA ASOS STATIONS

FIGURE 3.15

LOCAL NATIONAL WEATHER SERVICE QPFS

FIGURE 3.16

There are three National Weather Service QPF points in the region and one in the City of Santa Maria, as shown below. For more information on Local National Weather Service QPFs, go to: www.wrh.noaa.gov/lox/main.php?suite=hydrologyandpage=observations.

3.2.4 Reservoirs

3.2.4.1 Local Reservoir Operations

Daily surface water levels are measured for most major reservoirs in the region as part of daily reservoir operations. The County maintains reservoir operational records for two reservoirs – Lopez and Salinas. Other agencies collect and maintain reservoir operation data for the other major reservoirs, shown on Figure 3.17.

Data for each reservoir is available from the agency that operates the reservoir. As part of regular reservoir operations, daily lake elevation values are recorded at the following reservoirs:

- Chorro
- Lopez (includes Terminal Reservoir)
- Nacimiento
- Salinas
- Whale Rock
- Twitchell

Daily stage and storage values for these reservoirs are reported to the District on a daily basis.

3.2.5 Water Quality

Numerous federal, state, and local agencies and organizations have conducted water quality monitoring in the region over the past several decades. Non-profit organizations and other agencies in San Luis Obispo County are currently monitoring water quality in the County and the Central Coast region. These groups have relatively well-developed programs. Continued monitoring at the County level will provide a better overall picture of water quality in the County and will make the most efficient use of County resources[2]. Some regional water quality monitoring efforts are described below.

3.2.5.1 Sampling Surface Water

3.2.5.1.1 *Public Water Systems Monitoring*

Operators of public water systems (any system that serves drinking water to at least 24 persons for at least 60 days out of the year, or who serves domestic water to 15 or more service connections, is a public water system and must have a domestic water supply permit) conduct routine monitoring to ensure that the water they produce complies with Safe Drinking Water Act standards. Results are reported to the State of California

[2] San Luis Obispo County Stormwater Management Plan, June 2006.

RESERVOIR LOCATIONS

FIGURE 3.17

Department of Public Health (CDPH). Monitoring broadly encompasses several categories of constituents: microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides.

Sampling is conducted at treatment plants, within distribution systems, and at the tap, and monitoring results are evaluated to ensure that applicable drinking water quality standards are met. For regulated constituents, results are compared to Primary and Secondary MCLs, and unregulated contaminants are evaluated against CDPH Detection Limits for Purposes of Reporting (e.g., color, corrosivity, and odor).

Small water systems[3] are also required to conduct routine monitoring and report to the Environmental Health Services Division of the San Luis Obispo County Public Health Department.

3.2.5.1.2 *Surface Water Ambient Monitoring Program (SWAMP)*

The Surface Water Ambient Monitoring Program (SWAMP) is intended to integrate existing water quality monitoring activities of the State Water Resources Control Board and the Regional Water Quality Control Boards, and to coordinate with other monitoring programs.

Ambient monitoring refers to any activity in which information about the status of the physical, chemical, and biological characteristics of the environment is collected to answer specific questions about the status and trends in those characteristics. For the purposes of SWAMP, ambient monitoring refers to these activities as they relate to the characteristics of water quality. Only a small portion of SWAMP can be implemented at its current funding level. As a result, resources are focused where monitoring information is most needed to support regional program priorities, such as maintaining high quality waters, such as Lake Tahoe, or supporting the restoration of priority watersheds.

SWAMP is a statewide monitoring effort designed to assess the conditions of surface waters throughout the state of California. The program is administered by the State Water Resources Control Board. Responsibility for implementation of monitoring activities resides with the nine Regional Water Quality Control Boards that have jurisdiction over their specific geographical areas of the state. Monitoring is conducted in SWAMP through the Department of Fish and Game and U.S. Geological Survey master contracts and local Regional Boards monitoring contracts.

SWAMP is also intended to capture monitoring information collected under other State and Regional Board Programs such as the State's TMDL (Total Maximum Daily Load), Nonpoint Source, and Watershed Project Support programs. SWAMP does not conduct effluent or

[3] Systems having between 15 - 199 service connections and regularly serving 25 or more individuals daily at least 60 days out of the year, or systems that have 5-14 service connections and not regularly serving more than an average of 25 individuals daily for more than 60 days out of the year

discharge monitoring, which is covered under National Pollutant Discharge Elimination System permits and Waste Discharge Requirements.

Data from sites that are a part of the SWAMP can be obtained online at: http://bdat.ca.gov.

3.2.5.1.3 *303(d) Clean Water Act*

Under section 303(d) of the Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop total maximum daily loads (TMDLs) for these waters. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

3.2.5.1.4 *National Pollutant Discharge Elimination System Compliance Monitoring*

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Industrial, municipal and other facilities must obtain permits if their discharges go directly to surface waters.

EPA conducts inspections of facilities subject to the regulations to determine compliance. EPA inspections involve:

- Reviewing discharge monitoring reports
- Interviewing facility personnel knowledgeable of the facility
- Inspecting the processes that generate and treat wastewater
- Sampling wastewater discharges to navigable waterways and other points in the generation or treatment process
- Reviewing how samples are collected and analyzed by the laboratory

3.2.5.2 Streams, Lakes & Reservoirs

3.2.5.2.1 *Central Coast Ambient Monitoring Program (CCAMP)*

The Central Coast Regional Water Quality Control Board (Regional Board) is responsible for maintaining and enhancing water quality throughout central coastal California, including 370 miles of coastline in San Mateo, Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara counties. In 1998, the Regional Board initiated the Central Coast Ambient Monitoring Program (CCAMP), with a broad mandate to gather water quality data in groundwater, rivers, streams, estuaries, and the ocean, throughout the Regional Board's jurisdiction. It is the Regional Board's goal to "collect, assess, and disseminate water quality information to aid decision-makers and the public in maintaining, restoring, and enhancing

water quality and associated beneficial uses". Currently there are 23 river/stream sites in the region, as shown in Figure 3.18. Flow data is also collected at some but not all of these sites when the water quality samples are collected. These are not permanent stream flow gauges. Some monitoring within the Morro Bay watershed is also completed by the Morro Bay National Estuary Program (MBNEP). MBNEP data is compatible with CCAMP data management systems.

3.2.5.2.2 *SLO County Water Quality Lab*

Water sampling and analysis for District-provided water supplies are performed by the San Luis Obispo County Water Quality Laboratory. This lab is certified by the DHS as an environmental testing laboratory for bacteriological and chemical analyses. The lab performs analyses on water and wastewater for all County Special Districts, including:

- Cayucos
- County Airport
- Lopez Recreation Area
- Lopez WTP
- Nipomo
- Oak Shores
- Operations Center
- Salinas Project
- SLO Country Club
- Santa Margarita
- Shandon
- State Water

3.2.5.2.3 *Waste Discharge Compliance Monitoring*

Under Federal Clean Water Act Section 401, every applicant for a federal permit or license for any activity that may result in a discharge to a water body must obtain state water quality certification that the proposed activity will comply with state water quality standards.

The Regional Board regulates point source discharge of wastewater to land and surface waters of the region so that the highest quality and beneficial uses of these waters are protected and enhanced. Regulation is by issuance of either Waste Discharge Requirements (WDRs) or National Pollutant Discharge Elimination System (NPDES) permits. Both WDRs and NPDES permits contain monitoring requirements to verify compliance with applicable conditions. These requirements vary according to those specific conditions.

All persons or agencies discharging (or proposing to discharge) pollutants from a point source into any waters of the state are required to apply for and have a permit under the NPDES program and/or WDRs (issued by the Regional Board) to discharge. Typically publicly owned treatment works are regulated, through NPDES permits and/or WDRs, to monitor water quality for all points of water discharge.

CENTRAL COAST AMBIENT MONITORING PROGRAM

FIGURE 3.18

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Key permit conditions applicable to all NPDES permits or WDRs include those for monitoring. These conditions apply to both stormwater and non-stormwater discharges. Although the state, local authority, or EPA's general permits can impose additional requirements, the permit holder must typically monitor discharges within the following parameters:

- Flow
- Pollutants listed in the terms of the permit conditions
- Pollutants that could have a significant impact on the quality of the receiving streams
- Pollutants specified as subject to monitoring by EPA regulations
- Other pollutants for which the EPA requests monitoring in writing

Each of these monitoring parameters must be measured at the frequency specified in the NPDES permit, WDR, or at intervals sufficiently frequent to yield data that would characterize the nature of the discharge. Examples of cities and agencies that are currently operating wastewater collection, treatment and disposal systems under a NPDES permit include:

- City of Paso Robles
- City of Atascadero
- Atascadero State Hospital
- Templeton CSD
- San Miguel CSD
- South San Luis Obispo County Sanitation District
- City of Pismo Beach

3.2.5.3 Estuaries and Wetlands

Current monitoring in estuaries and wetlands is summarized below. Note that there is significant estuarine monitoring that is conducted by other federal agencies, state and local agencies, and the academic community that may not be discussed here.

3.2.5.3.1 *San Luis Obispo Science and Ecosystem Alliance (SLOSEA)*

As mentioned above, SLOSEA monitors water quality in the Morro Bay Estuary at the following sites and hopes to map spatial and temporal changes in the physical and chemical characteristics of water quality in the Morro Bay ecosystem.

Conductivity (and salinity), temperature, dissolved oxygen, oxygen saturation, fluorescence (a proxy for chlorophyll-a), turbidity, nitrate, current/current profile, and depth of water are

measured at these sites (Figure 3.19). More information on the sites maintained by SLOSEA can be found here: http://www.slosea.org.

3.2.5.3.2 *EPA's National Coastal Assessment*

The US EPA's National Coastal Assessment surveys the condition of the Nation's coastal resources by creating an integrated, comprehensive monitoring program among the coastal states.

To answer broad-scale questions on environmental conditions, EMAP and its partners have collected estuarine and coastal data from thousands of stations along the coasts of the continental United States. EMAP's National Coastal Assessment comprises all the estuarine and coastal sampling done by EMAP beginning in 1990. This includes the sampling done in the biogeographic provinces as well as data from the Regional EMAP (REMAP) studies done by EPA Regional Offices. Locally there are five stations in the region, see Figure 3.20, several of which are off-shore, coastal sampling sites. This data can be retrieved and stations mapped online at: http://oaspub.epa.gov/coastal/coast.search.

3.2.5.4 Oceans and Beaches

3.2.5.4.1 *California Clean Beaches Program*

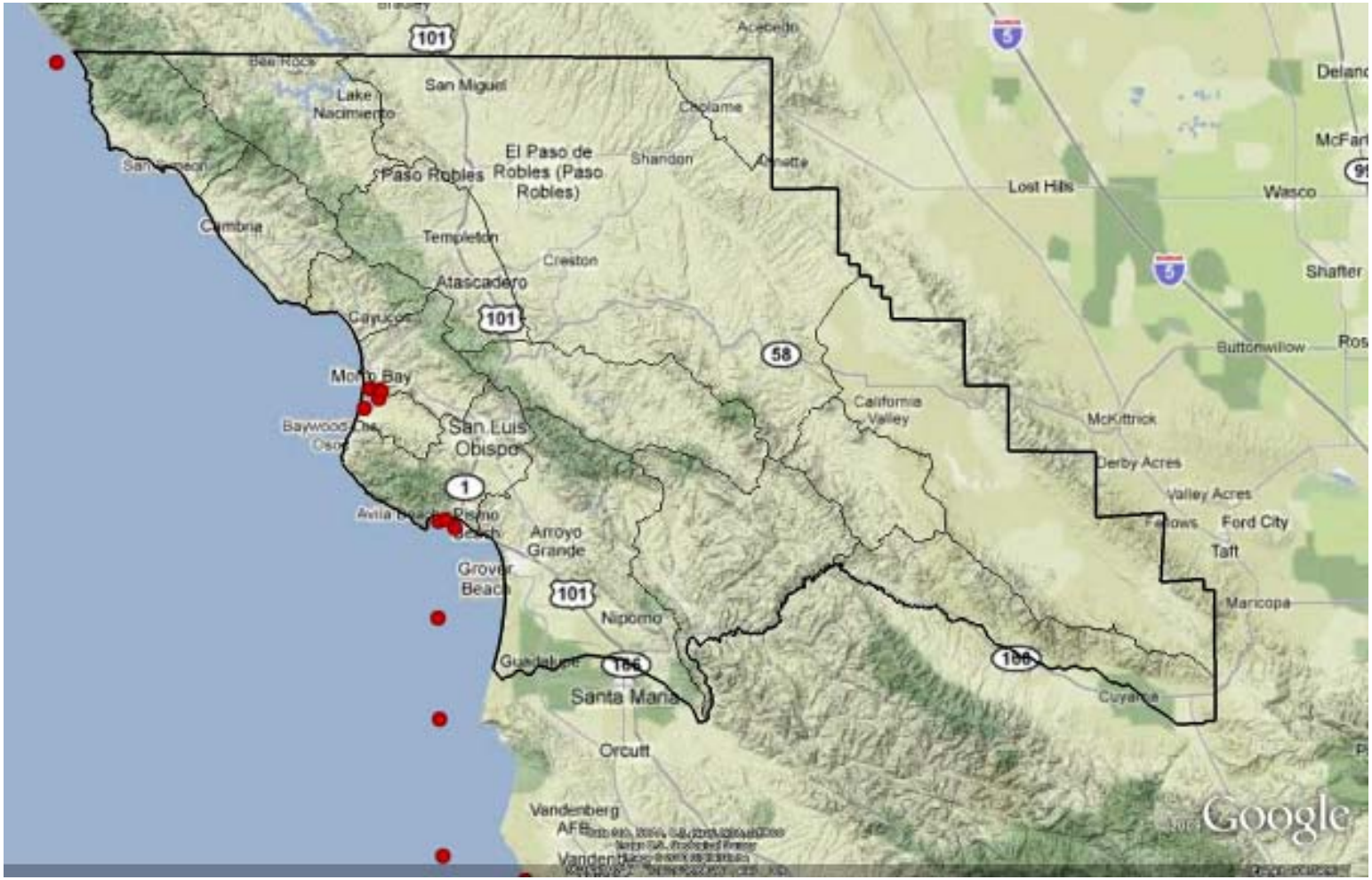
The Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000 requires that coastal and Great Lakes states and territories report to United States Environmental Protection Agency (US EPA) on beach monitoring and notification data for their coast recreation waters. The BEACH Act defines coastal recreation waters as the Great Lakes and coastal waters (including coastal estuaries) that states, territories, and authorized tribes officially recognize or designate for swimming, bathing, surfing, or similar activities in the water.

The BEACH Program focuses on the following five areas to meet the goals of improving public health and environmental protection for beach goers and providing the public with information about the quality of their beach water:

- Strengthening beach standards and testing
- Providing faster laboratory test methods
- Predicting pollution
- Investing in health and methods research
- Informing the public

SLOSEA SITES

FIGURE 3.19



EPA'S NATIONAL COASTAL ASSESSMENT

FIGURE 3.20

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The County's Environmental Health Services Division monitors beach water quality for recreational use through a California State grant between April 1 and October 31 of each year. Monitoring includes ocean water samples collected from the County's most visited beaches on a weekly basis. Shoreline samples are analyzed for bacterial indicators.

Locally, the County's Environmental Health Services Division conducts the public health beach monitoring and regulatory program. In 2010, nineteen (19) locations were analyzed for three indicator bacteria: enterococcus, total coliform, and fecal coliform. Beaches monitored included (Figure 3.21):

- Pismo State Beach, Oceano
- Pismo Beach
- Shell Beach
- Avila Beach
- Olde Port Beach
- Hazard Canyon
- Morro Bay City Beach
- Cayucos Beach
- Pico Ave., San Simeon

3.2.5.4.2 *National Data Buoy Center*

The National Oceanic and Atmospheric Administration (NOAA) National Data Buoy Center (NDBC), a part of the National Weather Service, designs, develops, operates, and maintains a network of data collecting buoys and coastal stations.

The major marine observing systems that form the US national marine observations backbone are:

- NOAA's National Weather Service's NDBC Ocean Observing System (NWS NOOS),
- NOAA's National Ocean Service's (NOS) National Water Level Observation Network (NWLON) and their Physical Oceanographic Real-Time System (PORTS)
- NOAA's Tropical Moored Buoy (TMB) projects
- NOAA's OAR drifting buoy programs.

COUNTY PUBLIC HEALTH BEACH MONITORING 2010

FIGURE 3.21

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NWS forecasters need frequent, high-quality marine observations to examine conditions for forecast preparation and to verify their forecasts after they are produced. Other users rely on the observations and forecasts for commercial and recreational activities. NDBC provides hourly observations from a network of about 90 buoys and 60 Coastal Marine Automated Network (C-MAN) stations to help meet these needs. All stations measure wind speed, direction, and gust; barometric pressure; and air temperature. In addition, all buoy stations, and some C-MAN stations, measure sea surface temperature and wave height and period. Conductivity and water current are measured at selected stations.

There are a few stations in the region, as shown on Figure 3.22. More information on stations that are a part of the National Data Buoy Center can be found at: http://www.ndbc.noaa.gov.

3.2.5.5 Sampling Groundwater

Groundwater is often sampled to determine the chemistry of the groundwater for purposes of utilizing the water for human consumption. Public water supply systems are subject to regulation by the California Department of Public Health, which specifies minimum guidelines for sampling frequency and sampling procedures that must be followed by any water system operator.

3.2.5.5.1 *United States Geological Survey (USGS)*

The USGS has conducted water quality sampling at more than 150 sites in the County since the 1920s. (Figure 3.23) Analytical parameters vary, but can include physical measures (e.g., pH and temperature) nutrients, major inorganics (e.g., chloride, potassium, and sulfate), and minor inorganics (e.g., boron and manganese). The USGS also conducts research and special studies to further the development of scientific knowledge and its application to real world management problems.

3.2.5.5.2 *Waste Discharge Compliance Monitoring*

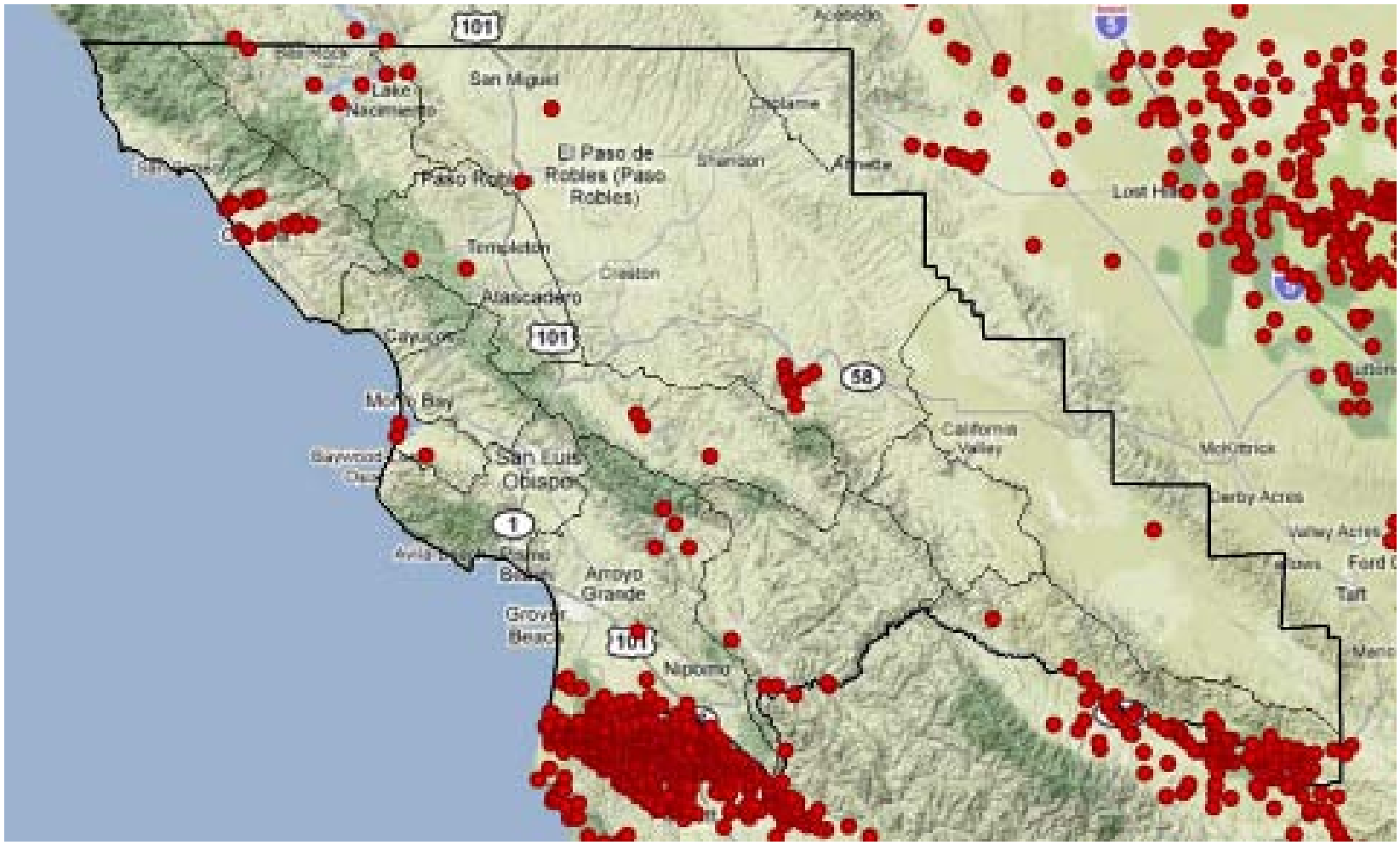
The Regional Board regulates discharges of wastewater to groundwater or surface water so that the highest quality and beneficial uses of these waters are protected and enhanced. Regulation is by issuance of either Waste Discharge Requirements (WDR) or NPDES permit. WDRs contain monitoring requirements to verify compliance with applicable conditions. These requirements vary according to those specific conditions.

WDR permit requirements often include groundwater monitoring. For example, the Regional Board has established monitoring programs for recycled water and wastewater operations that discharge to groundwater. Dischargers must periodically collect and analyze groundwater quality samples from wells representative of the receiving groundwater.

NATIONAL DATA BUOY CENTER

FIGURE 3.22

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
SAN LUIS OBISPO COUNTY MASTER WATER REPORT



HISTORIC UNITED STATES GEOLOGICAL SURVEY (USGS) WATER QUALITY MONITORING SITES

FIGURE 3.23

For a list of adopted orders, permits, resolutions, and settlements issued by the Central Coast Regional Water Quality Control Board, go to:
http://www.waterboards.ca.gov/centralcoast/board_decisions/adopted_orders/

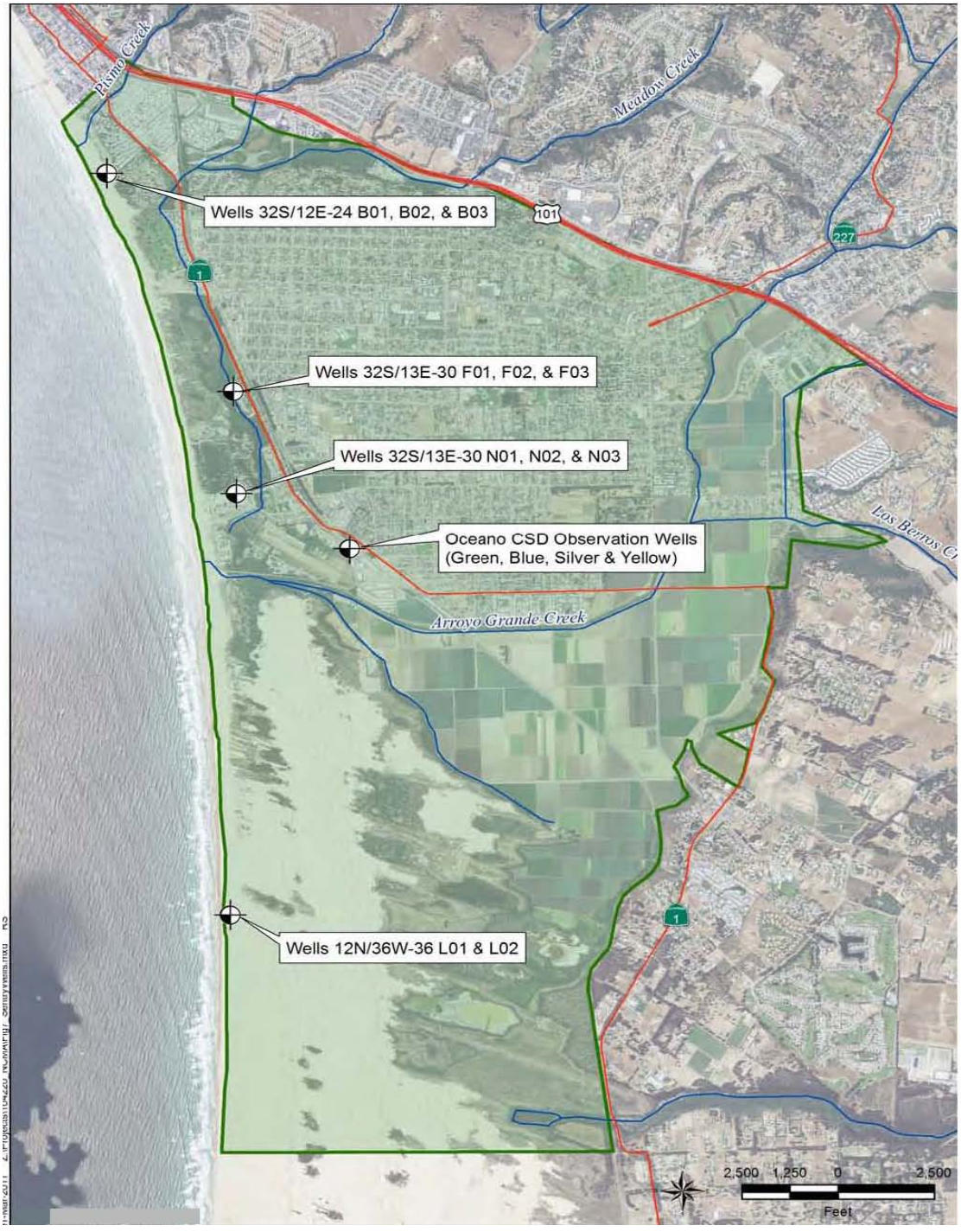
3.2.5.5.3 *State Water Resources Control Board Ground-Water Ambient Monitoring and Assessment Program (GAMA)*

The Ground-Water Ambient Monitoring and Assessment Program (GAMA) program is a comprehensive assessment of statewide groundwater quality. The program is designed to help better understand and identify risks to groundwater resources. Ground water will be sampled at many locations across California in order to characterize its constituents and identify trends in groundwater quality. The results of these tests will provide information for water agencies to address a variety of issues ranging in scale from local water supply to statewide resource management.

The GAMA program was developed in response to the Ground-Water Quality Monitoring Act of 2001 (Sections 10780-10782.3 of the Water Code): a public mandate to assess and monitor the quality of groundwater used as public supply for municipalities in California. The goal of the act was to improve statewide groundwater monitoring and facilitate the availability of information about groundwater quality to the public. The State Water Resources Control Board is implementing the GAMA Program in coordination with the U.S. Geological Survey and Lawrence Livermore National Laboratory.

3.2.5.5.4 *Coastal Sentry Well Monitoring*

Management areas and communities along the coast monitor for seawater intrusion. For example, the Northern Cities Management Area (NCMA) conducts quarterly monitoring of four coastal “sentry wells”, along with an Oceano observation well, all of which are shown in Figure 3.24. Each well location includes a “cluster” of individual well completions at various depths. Quarterly monitoring includes level measurement, as well as sampling and analysis for water quality. The monitoring results are presented in the NCMA Annual Report, which is filed with the Court. The coastal sentry wells monitored by the NCMA were renovated in 2010 to raise the surface completions above grade and secure them within locking enclosures. In early 2011, the NCMA agencies installed combination pressure transducers and conductivity probes in four of the sentry wells: 32S/12E-24B1; 32S/12E-24B2; 32S/13E-30F03; and 32S/13E-30N02. These probes allow the NCMA agencies to observe short duration variations in groundwater levels and quality to better characterize short and long-term trends as they relate to variables such as tidal variation, precipitation patterns and urban pumping.



NCMA COASTAL SENTRY WELLS

FIGURE 3.24

SAN LUIS OBISPO COUNTY FLOOD CONTROL WATER CONSERVATION DISTRICT
SAN LUIS OBISPO COUNTY MASTER WATER REPORT

3.2.5.5.5 *Other Groundwater Management Efforts*

Various groundwater management efforts in the County also include groundwater quality sampling. These include efforts in basins under adjudication that are required to monitor and report annually and/or develop Groundwater Management Plans, where a Groundwater Management Plan is voluntarily being developed, where an entity is implementing a project with monitoring requirements, where individual entities or groups are developing Salt and Nutrient Management Plans in accordance with the State Water Board's Basin Plan, where seawater intrusion is of concern to agencies that rely on coastal groundwater basins for their water supply, and where individual property owners check the quality of their drinking and/or irrigation water supply. The availability of the information varies with each effort, making it challenging to fully understand the condition of all groundwater basins. Sharing of this data with governmental agencies or regional groups conducting groundwater basin studies and, when appropriate, the public at-large, should be encouraged.

3.2.6 Unimpaired Runoff

As part of the Environmental Water Demand analysis, annual unimpaired (i.e., unregulated by impoundments or dams and not substantially effected by the diversion or pumping of water) flow statistics (e.g., mean, median, FMF) were calculated for select locations throughout San Luis Obispo County. The record/flow statistic(s) at long-term gaging stations were used to extend the record/flow statistic(s) of short-term gaging stations, and these in turn were used to estimate the flow statistic(s) at ungaged locations.

The environmental water demands were quantified for areas where data were available and unimpaired runoff data could be obtained, calculated, or estimated. Unimpaired runoff estimates were calculated by developing regional, multiple regression relationships that predict runoff at an ungaged, or partially gaged, location as a function of runoff at a gaged location. Once the estimated unimpaired runoff has been established, the environmental water demand was calculated by using the median annual discharge methodology (Hatfield and Bruce, 2000).

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of unimpaired data and regional physiographic differences. The District should consider installing stream gages in these WPAs to collect flow statistics, which would aid in determining environmental water demands for the eastern portion of the County.

The DWR has identified over 1,000 water rights applications and permits for San Luis Obispo County (DWR 2009b). For purposes of this analysis, the unimpaired mean annual discharge and environmental water demand is presented without including an analysis of the 1,000 diversion rights in the County. However, some of the established instream flow requirements are included. In order to obtain a better understanding of how much surface

water is available for aquatic life, the District would need to identify and quantify all diversion rights and instream flow requirements in the watershed.

3.2.7 Land Use

3.2.7.1 Urban Land Uses

Urban land uses refer to the unincorporated communities and incorporated cities in the County, and include residential, commercial, industrial, parks, institutions, and golf courses. Primary sources of water demand data for urban centers came from water system master plans (WSMP) and urban water management plans (UWMP) prepared by water purveyors, incorporated cities, and unincorporated communities. Additionally, the County's Annual Resource Summary Report 2008 (ARS) provides projected water demand and population data for these areas.

Since existing water demands and future water demand projections are based on information from WSMPs and UWMPs, land use information was not used to calculate water demand. The urban water demand for individual areas in the County was associated with a GIS layer that included the existing and future urban demand for each unincorporated community and incorporated city.

More information on the summary of urban water demands is provided later in this chapter.

3.2.7.2 Rural Land Uses

Rural water demands for unincorporated areas of the County that are outside population centers discussed above were calculated using the County's Land Use ArcGIS® layer, which includes land use and potential dwelling units (DUs) per acre for all unincorporated areas of the County. Vacant and developed properties and potential subdivisions and units in the unincorporated areas of the County were used to calculate a rural water demand. Additional sources include information from purveyors, water management plans, and the County's ARS.

See Appendix D for a description on the methods that the County used to prepare the land use data and for a detailed discussion of how the study utilized the County Land Use ArcGIS® database. For the rural demand analysis, all areas in the County that were accounted for with urban or agricultural water demand were excluded. However, rural home sites on agricultural lands were included in the rural land use demand analysis. Existing and projected future nurseries and vineyards present in the Land Use ArcGIS® layer were merged into the agriculture ArcGIS® layer and included in the agricultural demand analysis.

More information on the approach to calculating rural water demands is provided later in this chapter.

3.2.7.3 Agricultural Land Uses

The Agriculture/Crop GIS layer for the County from August 2008 was used, as well as other information provided by the Agricultural Commissioner's office. This land use layer is updated yearly with information from the pesticide use permits obtained through the San Luis Obispo County Department of Agriculture. The pesticide use permits provide the most accurate information available regarding the location of planned commercial agricultural production during the year, but in some instances may not be entirely accurate. Occasionally sites that obtain permits are not planted for a variety of reasons, and many vegetable crop sites may be planted with more than one crop rotation during a year (Isensee, 2009). The project team estimated agricultural production based on available information. The records do capture most organic operations usage. Use of water for ranching and pasture irrigation, among other uses not captured in pesticide permits, are not included. In Water Planning Areas where the majority of land is used for these purposes, the agricultural water demand may be significantly underestimated. Analysis of diversion rights records would help to address this issue in future updates to the Master Water Report.

The agricultural crop GIS data was used to determine crop acreages throughout the County. Additional information from the Agricultural Commissioner's office, UC Farm Advisors, and Cachuma Resource Conservation District (CRCD) Irrigation Specialist was utilized to estimate existing and future agricultural water demand. More information on the approach to calculating agricultural water demands is provided later in this chapter.

3.2.8 Population

Population information was taken from WSMPs, UWMPs, and the County's *Annual Resource Summary* Report.

3.2.9 Water System Production and Consumption

3.2.9.1 Water Quantity/Quality

A thorough understanding of the quantity of water required for various uses is critical for developing sustained use of the region's water resources. Sufficient quantities of fresh water are necessary, not only for economic development, agriculture, and recreation, but also for supporting ecosystems. Many programs in government agencies and other organizations use water quantity data and information.

Improving water quantity data and characterization, strengthening cooperation between water management programs, and preparing now for future water quantity concerns have been identified as key issues that require water quantity data.

Water quantity is also linked to water quality with regards to issues such as pollutant concentration levels, wastewater discharge requirements, and anthropogenic impacts associated with rainfall/recharge events. Environmental and climatic conditions play a major

role in the demands for and the availability of water supplies. Effective decision making relies on water quantity data and information from both naturally occurring events and human activities. Tracking data and information on droughts, floods, storm water runoff, instream flows, ground water recharge, water withdrawals, development related storm drainage, and water diversions is critical. Managing the region's water resources for sustained use cannot be successful without the knowledge and understanding of the hydrologic cycle, the myriad of demands on the resource and fluctuation in ground and surface water supplies.

3.2.9.2 Water Use Data

Water use is not monitored by a regional authority. It is the responsibility of each water provider to monitor their customers' water use. Fortunately, most water providers in the region meter their customers' water use and, therefore, have information on their customers' water use. Annually, water use data is requested by the County from these water providers.

Water users that own or use private wells and individuals that live outside of established city limits are typically not required to monitor or report their water use to any agency. One of the largest groups of water users that do not have their water use monitored are agricultural water users, who use a relatively large amount of water. Similarly, insufficient data for rural residential properties is a limitation in this study, but rural demands account for less than five percent of the total county demand.

Recommendations adopted by the County Board of Supervisors in the 2009 Annual Resource Summary Report, listed below, serve to address this issue, which will improve data availability for use in future updates to the Master Water Report.

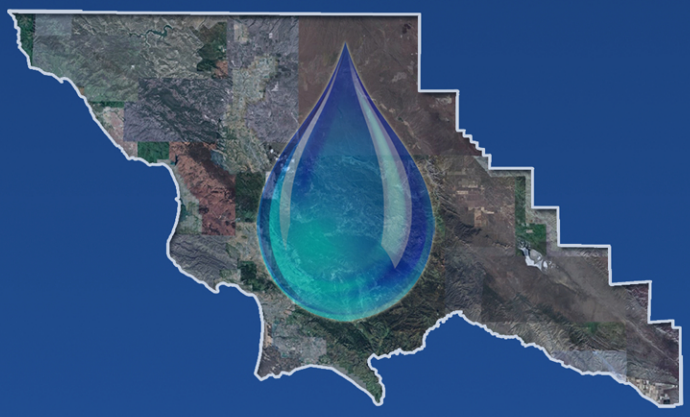
- Installation of flow meters on all new non-agricultural wells, record water use and other information monthly and report semi annually
- Require all water purveyors (including mutual water companies) with over 10 connections to record water use and other information monthly and report semi-annually
- Encourage voluntary well metering, monitoring and reporting

3.2.10 Agriculture

Since agricultural water predominately comes from groundwater sources, and is generally not provided – or metered – by a water supply system, a representative percentage of agricultural water users could meter and report their water use. Ideally, all meter readings would be recorded every month and reported to a central agency on an annual basis. Water use information provided to the State Water Board by landowners is also useful for water resources planning efforts.

3.2.10.1.1 *Agriculture and Irrigation Water Uses*

The County should consider facilitating a voluntary pilot program that would track actual applied water per acre for various agricultural users throughout the County. The vineyard community in the North County is participating in a program led by the University of California, Davis, Cooperative Extension to estimate applied water per acre that may serve as a model for implementation throughout the County.



San Luis Obispo County
Master Water Report
Volume II of III

MAY 2012

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US-LT Resource Conservation District

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

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San Luis Obispo County Flood Control and Water Conservation District

SAN LUIS OBISPO COUNTY MASTER WATER REPORT

May 2012

Expires on 3/31/13

Expires on 6/30/12

Expires on 12/31/13

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San Luis Obispo County Flood Control and Water Conservation District

SAN LUIS OBISPO COUNTY MASTER WATER REPORT

TABLE OF CONTENTS

Page No.

EXECUTIVE SUMMARY - MASTER WATER REPORT

ES.1 SUMMARY OF REPORT CHAPTERS....1
ES.2 MASTER WATER REPORT RECOMMENDATIONS....2
ES.2.1 District's Highest Priorities....2
ES.2.2 Water Management Strategies for Specific Users....3

CHAPTER 1 - INTRODUCTION

1.1 SCOPE OF MASTER WATER REPORT....1-1
1.2 GOALS AND OBJECTIVES....1-3
1.2.1 Ensure Stakeholder Input/Participation....1-3
1.2.2 Create a Framework for Maintaining the Master Water Report....1-3
1.2.3 Accurately Present Current and Future Supply/Demand....1-5
1.2.4 Ensure Support for Agricultural Demand Analysis....1-5
1.2.5 Ensure Support for Environmental Water Demand Characterization....1-5
1.2.6 Respect Autonomy of Individual Jurisdictions while Recognizing Differences/Conflicts....1-5
1.2.7 Present Analysis of Options, Conclusions and Recommendations....1-6
1.2.8 Ensure Compatibility with Other Documents....1-6
1.3 LIMITATIONS OF THE MASTER WATER REPORT....1-6
1.3.1 Technical Challenges with Demand Assessment....1-7
1.3.1.1 Urban Water Demand....1-7
1.3.1.2 Rural Water Demand....1-7
1.3.1.3 Agricultural Water Demand....1-7
1.3.1.4 Definition of "Build-Out" Demand....1-8
1.3.1.5 Conservation and Irrigation Efficiencies....1-8
1.3.2 Use of Available Technical Documents....1-8
1.3.3 Groundwater Basin Yield Estimates....1-9
1.3.4 Use of Management Area Reports....1-9
1.3.5 Technical Challenges with Environmental Assessment....1-9
1.4 DEFINITION OF KEY TERMS....1-10

CHAPTER 2 - PART I: BACKGROUND ON WATER RESOURCE MANAGEMENT EFFORT

2.1 WATER PLANNING AREAS....2-1
2.1.1 North Coast Sub-Region....2-1
2.1.1.1 San Simeon WPA 1....2-1
2.1.1.2 Cambria WPA 2....2-3
2.1.1.3 Cayucos WPA 3....2-3
2.1.1.4 Morro Bay WPA 4....2-3
2.1.1.5 Los Osos WPA 5....2-3
2.1.2 South Coast Sub-Region....2-3
2.1.2.1 San Luis Obispo/Avila WPA 6....2-5

2.1.2.2 South Coast WPA 7 2-5
2.1.2.3 Huasna Valley WPA 8 2-5
2.1.2.4 Cuyama Valley WPA 9 2-5
2.1.3 Inland Sub-Region 2-6
2.1.3.1 Carrizo Plain WPA 10 2-6
2.1.3.2 Rafael/Big Spring WPA 11 2-6
2.1.3.3 Santa Margarita WPA 12 2-6
2.1.3.4 Atascadero/Templeton WPA 13 2-6
2.1.3.5 Salinas/Estrella WPA 14 2-8
2.1.3.6 Cholame WPA 15 2-8
2.1.3.7 Nacimiento WPA 16 2-8
2.2 WATER SERVICE COOPERATIVE AGREEMENTS AND OTHER COORDINATION EFFORTS 2-8
2.2.1 WPA 3, 4 and 6 – Whale Rock Reservoir Water Supply 2-9
2.2.2 WPA 4 - City of Morro Bay/Whale Rock Commission 2-9
2.2.3 WPA 4 - Chorro Valley Water System 2-9
2.2.4 WPA 4, 6, 7, and 14 -State Water Project 2-10
2.2.5 WPA 5 – Los Osos Interlocutory Stipulated Judgment (ISJ) 2-10
2.2.6 WPA 6 – Santa Margarita Lake/Salinas Reservoir 2-11
2.2.7 WPA 7 – Groundwater Management Agreement/Northern Cities Management Area 2-11
2.2.8 WPA 6 and 7 – Lopez Lake Zone 3 Water Supply Project 2-12
2.2.9 WPA 7 – Nipomo Mesa Management Area 2-12
2.2.10 WPA 4, 6, 13 and 14 - Nacimiento Water Supply Project 2-13
2.2.11 WPA 13 and 14 - Paso Robles Groundwater Management Plan and Basin Agreement 2-14
2.2.11.1 Paso Robles Groundwater Management Plan 2-14
2.2.11.2 Paso Robles Groundwater Basin Agreement 2-14
2.3 RESOURCE AGENCIES 2-15
2.3.1 State Agencies 2-15
2.3.2 Agricultural Organizations 2-16
2.3.3 Environmental Organizations 2-16

CHAPTER 3 - PART II: AVAILABLE DATA

3.1 OBJECTIVES 3-1
3.2 DATA COLLECTION EFFORTS OR PROGRAMS 3-1
3.2.1 Groundwater 3-1
3.2.1.1 Water levels 3-1
3.2.1.2 Geologic Data and Well Logs 3-5
3.2.2 Stream Flow 3-7
3.2.2.1 District Stream Measuring Program 3-10
3.2.2.2 U.S. Geological Survey Stream Gauging Program 3-10
3.2.3 Precipitation 3-12
3.2.3.1 District Recording Rain Gauge Program 3-12
3.2.3.2 District Volunteer Precipitation Program 3-16
3.2.3.3 District ALERT Rain Gauge Program 3-16
3.2.3.4 California Irrigation Management Information System (CIMIS) Stations 3-18
3.2.3.5 National Oceanic and Atmospheric Administration / National Weather Service Cooperative Observer Network 3-20
3.2.3.6 Citizen Weather Observer Program (CWOP) 3-20

3.2.3.7 Remote Automated Weather Station (RAWS) Gauges 3-23
3.2.3.8 NWS Automated Surface Observing System (ASOS) Stations .. 3-25
3.2.3.9 National Weather Service Precipitation Forecasts (QPF) 3-27
3.2.4 Reservoirs 3-30
3.2.4.1 Local Reservoir Operations 3-30
3.2.5 Water Quality 3-30
3.2.5.1 Sampling Surface Water 3-30
3.2.5.2 Streams, Lakes & Reservoirs 3-33
3.2.5.3 Estuaries and Wetlands 3-36
3.2.5.4 Oceans and Beaches 3-37
3.2.5.5 Sampling Groundwater 3-42
3.2.6 Unimpaired Runoff 3-47
3.2.7 Land Use 3-48
3.2.7.1 Urban Land Uses 3-48
3.2.7.2 Rural Land Uses 3-48
3.2.7.3 Agricultural Land Uses 3-49
3.2.8 Population 3-49
3.2.9 Water System Production and Consumption 3-49
3.2.9.1 Water Quantity/Quality 3-49
3.2.9.2 Water Use Data 3-50
3.2.10 Agriculture 3-50

CHAPTER 4 - PART II: WATER RESOURCE ANALYSIS

4.1 OBJECTIVES 4-1
4.2 OVERVIEW OF GROUNDWATER RESOURCES 4-1
4.2.1 North Coast Sub-Region 4-1
4.2.1.1 San Simeon Water Planning Area (WPA) 1 4-2
4.2.1.2 Cambria WPA 2 4-5
4.2.1.3 Cayucos WPA 3 4-9
4.2.1.4 Morro Bay WPA 4 4-14
4.2.1.5 Chorro Valley Groundwater Basin 4-16
4.2.1.6 Los Osos WPA 5 4-17
4.2.2 South Coast Sub-Region 4-19
4.2.2.1 San Luis Obispo/Avila WPA 6 4-20
4.2.2.2 South Coast WPA 7 4-24
4.2.2.3 Huasna Valley WPA 8 4-33
4.2.2.4 Cuyama Valley WPA 9 4-36
4.2.3 Inland Sub-Region 4-38
4.2.3.1 Carrizo Plain WPA 10 4-39
4.2.3.2 Rafael Valley/Big Spring WPA 11 4-42
4.2.3.3 Santa Margarita WPA 12 4-44
4.2.3.4 Atascadero/Templeton WPA 13 4-47
4.2.3.5 Salinas/Estrella WPA 14 4-50
4.2.3.6 Cholame Valley WPA 15 4-53
4.2.3.7 Nacimiento WPA 16 4-55
4.2.4 OTHER GROUNDWATER SUPPLY SOURCES 4-55
4.3 OVERVIEW OF SURFACE WATER SUPPLY 4-57
4.3.1 State Water Project 4-57
4.3.2 Nacimiento Water Project 4-61
4.3.3 Whale Rock Reservoir 4-62
4.3.3.1 Operating Agreements 4-63

4.3.4 Lopez Lake/Reservoir 4-65
4.3.5 Santa Margarita Lake/Salinas Reservoir 4-66
4.3.6 Chorro Reservoir 4-66
4.4 OTHER WATER SUPPLY SOURCES 4-67
4.4.1 Twitchell Reservoir 4-67
4.4.2 Desalination 4-67
4.4.2.1 Morro Bay Desalination 4-67
4.4.2.2 Other Desalination Projects 4-68
4.4.3 Water Recycling 4-68
4.5 WATER CONSERVATION PROGRAMS 4-69
4.5.1.1 Urban Water Management Plans: 4-70
4.5.1.2 Partners in Water Conservation: 4-71
4.5.1.3 Agricultural Water Conservation Programs 4-71
4.5.1.4 California Urban Water Conservation Council 4-72
4.5.1.5 Decentralized Water Supply Opportunities 4-73
4.6 WATER SUPPLY, DEMAND, WATER QUALITY 4-74
4.6.1 Total Water Demand 4-75
4.6.1.1 Method for Calculating Demand 4-75
4.6.1.2 Assumptions for Calculating Demand 4-75
4.6.1.3 Total Demand by WPA 4-76
4.6.2 Urban Water Demand 4-82
4.6.2.1 Sources of Information 4-82
4.6.2.2 Method/Assumptions: Existing Use and Future Water Demand 4-82
4.6.2.3 Urban Water Demand by WPA 4-82
4.6.3 Agricultural Water Demand 4-82
4.6.3.1 Sources of Information 4-83
4.6.3.2 Method/Assumptions: Existing Agricultural Demand 4-84
4.6.3.3 Method/Assumptions: Future Agricultural Demand 4-86
4.6.3.4 Agricultural Water Demand by WPA 4-88
4.6.4 Rural Water Demand 4-89
4.6.4.1 Sources of Information 4-89
4.6.4.2 Method/Assumptions: Existing and Future Rural Demand 4-89
4.6.4.3 Rural Water Demand by WPA 4-90
4.6.5 Environmental Demand 4-91
4.6.5.1 Definitions 4-91
4.6.5.2 Method/Assumptions: Environmental Demand 4-91
4.6.6 North Coast Sub-Region 4-92
4.6.6.1 San Simeon WPA 1 4-92
4.6.6.2 Cambria WPA 2 4-97
4.6.6.3 Cayucos WPA 3 4-101
4.6.6.4 Morro Bay WPA 4 4-105
4.6.6.5 Los Osos WPA 5 4-113
4.6.7 South Coast Sub-Region 4-118
4.6.7.1 San Luis Obispo/Avila WPA 6 4-118
4.6.7.2 South Coast WPA 7 4-128
4.6.7.3 Huasna Valley WPA 8 4-154
4.6.7.4 Urban Users 4-154
4.6.7.5 Cuyama Valley WPA 9 4-156
4.6.8 Inland Sub-Region 4-158
4.6.8.1 Carrizo Plain WPA 10 4-158

4.6.8.2 Rafael/Big Spring WPA 11 4-162
4.6.8.3 Santa Margarita WPA 12 4-164
4.6.8.4 Atascadero/Templeton WPA 13 4-169
4.6.8.5 Salinas/Estrella WPA 14 4-180
4.6.8.6 Cholame WPA 15 4-189
4.6.8.7 Nacimiento WPA 16 4-191
4.7 ANALYSIS CRITERIA 4-195
4.7.1 Criteria for Declaring a Water Resource Shortfall 4-195
4.7.2 Criteria for Evaluating and Ranking Water Resource Management Strategies (management, projects, programs, policies) 4-195
4.7.3 Water Management Strategies 4-196
4.7.3.1 Conservation Programs 4-196
4.7.3.2 Optimize Use of the Nacimiento Water Project (NWP) 4-197
4.7.3.3 Land Use Management 4-197
4.7.3.4 Recycled Water 4-198
4.7.3.5 Optimize Use of State Water Project (SWP) 4-198
4.7.3.6 Groundwater Banking/Recharge 4-198
4.7.3.7 Groundwater Supply Sources 4-199
4.7.3.8 Salinas Reservoir Expansion/Exchanges 4-199
4.7.3.9 Desalination 4-200
4.7.3.10 Lopez Lake Expansion/Exchanges 4-200
4.7.3.11 New Off-stream Storage 4-200
4.7.3.12 Nipomo Supplemental Water Project Optimization 4-201
4.7.3.13 Precipitation Enhancement 4-201
4.7.3.14 New On-stream Storage 4-201
4.7.4 Conservation Programs 4-202
4.7.4.1 Agriculture Conservation 4-202
4.7.4.2 Urban and Rural Water Use Efficiency 4-205
4.7.4.3 Economic Incentives 4-208
4.7.5 Optimize Use of the Nacimiento Water Project 4-211
4.7.5.1 Potential Benefits of Optimizing the use of the Nacimiento Water Project 4-211
4.7.5.2 Potential Cost of Optimizing the use of the Nacimiento Water Project 4-212
4.7.5.3 Major Issues Facing Optimization of the use of the Nacimiento Water Project 4-212
4.7.5.4 Recommendations to Optimize the use of the Nacimiento Water Project 4-213
4.7.6 Land Use Management 4-214
4.7.6.1 Potential Benefits from Land Use Management 4-216
4.7.6.2 Potential Cost of Land Use Management 4-217
4.7.6.3 Major Issues Facing Land Use Management 4-218
4.7.6.4 Recommendations for Implementation of Land Use Management 4-221
4.7.7 Recycled Water 4-223
4.7.7.1 Potential Benefits of Water Recycling 4-224
4.7.7.2 Potential Cost of Recycled Water 4-225
4.7.7.3 Major Issues Facing Water Recycling 4-225
4.7.7.4 Central Coast RWQCB Conditional Waiver 4-227
4.7.7.5 Recommendations to Increase Recycled Water Use 4-227
4.7.8 Optimize Use of State Water Project 4-228

4.7.8.1 Potential Benefits of Optimizing the Use of the State Water Project 4-229
4.7.8.2 Potential Cost of Optimizing the use of the State Water Project 4-229
4.7.8.3 Major Issues Facing Optimization of the use of the State Water Project 4-230
4.7.8.4 Recommendations to Optimize the use of the State Water Project 4-231
4.7.9 Groundwater Banking/Recharge 4-232
4.7.9.1 Potential Benefits of Groundwater Banking/ Recharge 4-233
4.7.9.2 Potential Costs of Groundwater Banking/Recharge 4-234
4.7.9.3 Major Issues Facing Groundwater Banking/ Recharge 4-234
4.7.9.4 Recommendations to Improve Groundwater Banking/ Recharge 4-235
4.7.10 Groundwater Supply Sources 4-236
4.7.10.1 Potential Benefits of using Groundwater Supply Sources 4-236
4.7.10.2 Potential Cost of Groundwater Supply Sources 4-236
4.7.10.3 Major Issues Facing the use of Groundwater Supply Sources . 4-236
4.7.10.4 Recommendations to Facilitate Management of Groundwater Supply Sources 4-236
4.7.11 Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.1 Potential Benefits of Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.2 Potential Cost of Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.3 Major Issues Facing Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.4 Recommendations to Facilitate Salinas Reservoir Expansion/Exchanges 4-238
4.7.12 Desalination 4-238
4.7.13 Lopez Lake Expansion/Exchanges 4-243
4.7.13.1 Potential Benefits of Lopez Reservoir Expansion/Exchanges .. 4-243
4.7.13.2 Potential Cost of Lopez Reservoir Expansion/Exchanges 4-243
4.7.13.3 Major Issues Facing Lopez Reservoir Expansion/Exchanges .. 4-244
4.7.13.4 Recommendations to Facilitate Lopez Reservoir Expansion/Exchanges 4-244
4.7.14 New Off Stream Storage 4-244
4.7.14.1 Potential Benefits of Off Stream Surface Storage 4-245
4.7.14.2 Potential Costs of New Off Stream Surface Storage 4-245
4.7.14.3 Major Issues Facing New Off Stream Storage 4-245
4.7.14.4 Recommendation to Increase Off Stream Surface Storage Benefits 4-246
4.7.15 Nipomo Supplemental Water Project 4-246
4.7.15.1 Potential Benefits of the Nipomo Supplemental Water Project. 4-247
4.7.15.2 Potential Cost of the Nipomo Supplemental Water Project 4-247
4.7.15.3 Major Issues Facing the Nipomo Supplemental Water Project. 4-247
4.7.15.4 Recommendations to Facilitate the Nipomo Supplemental Water Project 4-247
4.7.16 Precipitation Enhancement 4-247
4.7.16.1 Potential Benefits from Precipitation Enhancement 4-248
4.7.16.2 Potential Cost of Precipitation Enhancement 4-249
4.7.16.3 Major Issues for Precipitation Enhancement 4-249
4.7.16.4 Recommendations to Increase Precipitation Enhancement 4-250
4.7.17 New On Stream Storage 4-250

4.7.17.1 Potential Benefits of On Stream Surface Storage 4-251
4.7.17.2 Potential Costs of New On Stream Surface Storage 4-252
4.7.17.3 Major Issues Facing New On Stream Storage 4-252
4.7.17.4 Recommendation to Increase On Stream Surface Storage Benefits 4-253
4.8 SUMMARY ANALYSIS, CONCLUSIONS, RECOMMENDATIONS 4-253
4.8.1 Contingency Plan or Reliability Supply 4-253
4.8.1.1 City of San Luis Obispo Reliability Reserve 4-254
4.8.1.2 Reliability Supply Goal 4-256
4.8.2 Regional Water Supply Strategies 4-256
4.8.2.1 Interagency Arrangements and Exchanges 4-257
4.8.2.2 Chorro Valley Water System Connection to NWP 4-257
4.8.2.3 Santa Margarita Lake/Salinas Reservoir Release 4-257
4.8.3 Water Conservation 4-258
4.8.4 Groundwater Evaluations 4-258
4.8.5 Groundwater Banking/Recharge 4-259
4.8.6 Streamline Institutional Agreements 4-259
4.8.7 Improving Agriculture Demand Estimate 4-259
4.8.8 Improving Rural Demand Estimate 4-260
4.8.9 Agricultural and Rural Users Water Management Strategies 4-261
4.8.10 Environmental Water Management Strategy 4-262
4.8.11 Unsubscribed State Water Project 4-263
4.8.12 North Coast Sub-Region 4-263
4.8.12.1 San Simeon WPA 1 4-263
4.8.12.2 Cambria WPA 2 4-269
4.8.12.3 Cayucos WPA 3 4-272
4.8.12.4 Morro Bay WPA 4 4-275
4.8.12.5 Los Osos WPA 5 4-281
4.8.13 South Coast Sub-Region 4-285
4.8.13.1 San Luis Obispo/Avila WPA 6 4-285
4.8.13.2 South Coast WPA 7 4-290
4.8.13.3 Huasna Valley WPA 8 4-299
4.8.13.4 Cuyama Valley WPA 9 4-302
4.8.14 Inland Sub-Region 4-305
4.8.14.1 Carrizo Plain WPA 10 4-305
4.8.14.2 Rafael/Big Spring WPA 11 4-309
4.8.14.3 Santa Margarita WPA 12 4-312
4.8.14.4 Atascadero/Templeton WPA 13 4-316
4.8.14.5 Salinas/Estrella WPA 14 4-322
4.8.14.6 Cholame WPA 15 4-328
4.8.14.7 Nacimiento WPA 16 4-331

CHAPTER 5 - PART III: WATER RESOURCE PLANNING

5.1 RELATIONSHIP OF MASTER WATER REPORT TO EXISTING DOCUMENTS 5-1
5.1.1 California Water Plan 5-1
5.1.1.1 Description 5-1
5.1.1.2 Relationship to Master Water Report (MWR) 5-1
5.1.1.3 Timing 5-1
5.1.1.4 Issues Related to Coordination 5-2
5.1.1.5 Recommendations for Coordination 5-2

5.1.2 Integrated Regional Water Management Plan 5-2
5.1.2.1 Description 5-2
5.1.2.2 Relationship to MWR 5-2
5.1.2.3 Timing 5-3
5.1.2.4 Issues related to coordination 5-3
5.1.2.5 Recommendations for coordination 5-3
5.1.3 County General Plan 5-3
5.1.3.1 Conservation and Open Space Element 5-3
5.1.3.2 Land Use and Circulation Element 5-5
5.1.3.3 County Resource Management System 5-6
5.1.3.4 Agricultural Element 5-8
5.1.4 Sub-Regional/Area Water Resources Planning Documents 5-9
5.1.4.1 Description 5-9
5.1.4.2 Relationship to MWR 5-10
5.1.4.3 Timing 5-10
5.1.4.4 Issues related to coordination 5-10
5.1.4.5 Recommendations for Coordination 5-10
5.2 RECOMMENDATIONS FOR FUTURE MASTER WATER REPORT UPDATES 5-11
5.2.1 Areas of Improvement and Data Limitations 5-11

APPENDIX A TM No. 1, Description of Available Data, prepared by Wallace Group in association with Carollo Engineers, Fugro West Inc., and Cleath-Harris Geologists

APPENDIX B TM No. 2, Water Supply Inventory and Assessment – Description of Water Resources, prepared by Wallace Group in association with Fugro West Inc., and Cleath-Harris Geologists

APPENDIX C TM No. 3, Water Supply Inventory and Assessment – Water Supply, Demand, and Water Quality

APPENDIX D Memorandum, San Luis Obispo County Water Demand Analysis Methodology and Results, ESA, January 11, 2010

LIST OF TABLES

Table ES 1: Master Water Report Recommendations 4

Table 1.1 WRAC Workshops 1-4

Table 4.1 North Coast Sub-Region Groundwater Basins 4-2
Table 4.2 South Coast Sub-Region Groundwater Basins 4-20
Table 4.3 Inland Sub-Region Groundwater Basins 4-39
Table 4.4 Other Developed Supply Sources 4-55
Table 4.5 State Water Project Water Service Amount 4-60
Table 4.6 Nacimiento Water Project Participants 4-62
Table 4.7 Whale Rock Reservoir Allocations 4-63
Table 4.8 Whale Rock Downstream Entitlements 4-64
Table 4.9 Lopez Lake Allocations 4-65
Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas(1) 4-77

Table 4.11 Urban Water Demand by Water Planning Area [(1)] 4-83
Table 4.12 Crop Group and Commodities Used for the Agricultural Demand Analysis 4-84
Table 4.13 Existing Irrigated Crop Acreage Determined in GIS[(1)] 4-85
Table 4.14 Forecast Irrigated Crop Acreage Determined in GIS[(1)] 4-87
Table 4.15 Agricultural Water Demand by Water Planning Area [(1)] 4-88
Table 4.16 Existing and Future Rural Water Demand 4-90
Table 4.17 Mean Annual Discharge and Environmental Water Demand Estimates 4-93
Table 4.18 San Simeon CSD Demand and Supply 4-95
Table 4.19 San Simeon WPA 1 Demand and Supply 4-96
Table 4.20 Cambria CSD Demand and Supply 4-98
Table 4.21 Cambria WPA 2 Demand and Supply 4-100
Table 4.22 Cayucos Area Water Organization Demand and Supply 4-102
Table 4.23 Cayucos WPA 3 Supply and Demand 4-104
Table 4.24 Morro Bay and Chorro Valley Water Demand and Supply 4-108
Table 4.25 Morro Bay WPA 4 Supply and Demand 4-112
Table 4.26 Population Estimates and Connection Data for Urban Water Purveyors (2002 Los Osos CSD WMP, 2009 RMS, and GSWC Files) 4-114
Table 4.27 Los Osos Area Demand and Supply 4-115
Table 4.28 Los Osos WPA 5 Demand and Supply 4-117
Table 4.29 San Luis Obispo (includes County airport), Cal Poly San Luis Obispo, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, CSA 12, and Port San Luis Demand and Supply 4-123
Table 4.30 San Luis Obispo/Avila WPA 6 Demand and Supply 4-126
Table 4.31 Golden State Water Company (Edna Valley) Demand and Supply 4-128
Table 4.32 Pismo Beach, Arroyo Grande, Grover Beach, and Oceano CSD Demand and Supply 4-134
Table 4.33 Northern Cities Management Area Rural Water Use Demand 4-136
Table 4.34 Northern Cities Management Area Demand and Supply 4-138
Table 4.35 Golden State Water Company, Nipomo CSD, Rural Water Company, and Conoco-Phillips Demand and Supply 4-144
Table 4.36 Agricultural Demand 4-146
Table 4.37 NMMA Demand and Supply 4-147
Table 4.38 South Coast WPA 7 Demand and Supply 4-150
Table 4.39 Huasna Valley WPA 8 Demand and Supply 4-155
Table 4.40 Cuyama Valley WPA 9 Demand and Supply 4-157
Table 4.41 Solar Farm Demand Estimates 4-159
Table 4.42 Carrizo Plain WPA 10 Demand and Supply 4-161
Table 4.43 Rafael/Big Spring WPA 11 Demand and Supply 4-163
Table 4.44 Santa Margarita Area Demand and Supply 4-166
Table 4.45 Santa Margarita WPA 12 Demand and Supply 4-167
Table 4.46 Summary of Existing Water Supplies for Templeton CSD 4-170
Table 4.47 Garden Farms CWD, Templeton CSD, Atascadero MWC, and Paso Robles Demand and Supply 4-174
Table 4.48 Atascadero/Templeton WPA 13 Demand and Supply 4-177
Table 4.49 San Miguel CSD, Camp Roberts, CSA 16, and Paso Robles Demand and Supply 4-184
Table 4.50 Salinas/Estrella WPA 14 Demand and Supply 4-187
Table 4.51 Cholame WPA 15 Demand and Supply 4-190
Table 4.52 Nacimiento WPA 16 Demand and Supply 4-193
Table 4.53 City of San Luis Obispo 2010 Water Supply Accounting 4-255

Table 4.54 San Simeon WPA 1 Water Management Strategies 4-266
Table 4.55 Cambria WPA 2 Water Management Strategies 4-270
Table 4.56 Cayucos WPA 3 Water Management Strategies 4-273
Table 4.57 Morro Bay WPA 4 Water Management Strategies 4-278
Table 4.58 Los Osos WPA 5 Water Management Strategies 4-282
Table 4.59 San Luis Obispo/Avila WPA 6 Water Management Strategies 4-287
Table 4.60 South Coast WPA 7 Water Management Strategies 4-294
Table 4.61 Huasna Valley WPA 8 Water Management Strategies 4-300
Table 4.62 Cuyama Valley WPA 9 Water Management Strategies 4-303
Table 4.63 Carrizo Plain WPA 10 Water Management Strategies 4-306
Table 4.64 Rafael/Big Spring WPA 11 Water Management Strategies 4-310
Table 4.65 Santa Margarita WPA 12 Water Management Strategies 4-313
Table 4.66 Atascadero/Templeton WPA 13 Water Management Strategies 4-318
Table 4.67 Salinas/Estrella WPA 14 Water Management Strategies 4-324
Table 4.68 Cholame WPA 15 Water Management Strategies 4-329
Table 4.69 Nacimiento WPA 16 Water Management Strategies 4-332

LIST OF FIGURES

Figure 1.1 Sub-Regions and Water Planning Areas 1-2

Figure 2.1 North Coast Sub-Region 2-2
Figure 2.2 South Coast Sub Region 2-4
Figure 2.3 Inland Sub-Region 2-7

Figure 3.1 Measured Regional Groundwater Wells 3-2
Figure 3.2 District Groundwater Measuring Program 3-4
Figure 3.3 U.S. Geological Survey Well Measuring Program 3-6
Figure 3.4 Streams With Current Gauge Stations 3-8
Figure 3.5 San Luis Obispo County Stream Measuring Program 3-11
Figure 3.6 USGS Stream Gauge Sites 3-13
Figure 3.7 Regional Rain Gauge Network 3-14
Figure 3.8 County Recording Rain Gauge Distribution 3-15
Figure 3.9 County Volunteer Rain Gauge Distribution 3-17
Figure 3.10 District Real-Time Rain Gauge Network 3-19
Figure 3.12 Regional COOP Stations 3-22
Figure 3.13 Citizen Weather Observer Program Gauges 3-24
Figure 3.14 Remote Automated Weather Station (RAWS) Gauges 3-26
Figure 3.15 FAA ASOS Stations 3-28
Figure 3.16 Local National Weather Service QPFs 3-29
Figure 3.17 Reservoir Locations 3-31
Figure 3.18 Central Coast Ambient Monitoring Program 3-35
Figure 3.19 SLOSEA Sites 3-38
Figure 3.20 EPA's National Coastal Assessment 3-39
Figure 3.21 County Public Health Beach Monitoring 2010 3-41
Figure 3.22 National Data Buoy Center 3-43
Figure 3.23 Historic United States Geological Survey (USGS) Water Quality Monitoring Sites 3-44
Figure 3.24 NCMA Coastal Sentry Wells 3-46

Figure 4.1 San Luis Obispo County Water Planning Area 1 4-3
Figure 4.2 San Luis Obispo County Water Planning Area 2 4-7
Figure 4.3 San Luis Obispo County Water Planning Area 3 4-11
Figure 4.4 San Luis Obispo County Water Planning Area 4 4-15
Figure 4.5 San Luis Obispo County Water Planning Area 5 4-18
Figure 4.6 San Luis Obispo County Water Planning Area 6 4-21
Figure 4.7 San Luis Obispo County Water Planning Area 7 4-25
Figure 4.8 San Luis Obispo County Water Planning Area 8 4-35
Figure 4.9 San Luis Obispo County Water Planning Area 9 4-37
Figure 4.10 San Luis Obispo County Water Planning Area 10 4-41
Figure 4.11 San Luis Obispo County Water Planning Area 11 4-43
Figure 4.12 San Luis Obispo County Water Planning Area 12 4-45
Figure 4.13 San Luis Obispo County Water Planning Area 13 4-48
Figure 4.14 San Luis Obispo County Water Planning Area 14 4-51
Figure 4.15 San Luis Obispo County Water Planning Area 15 4-54
Figure 4.16 San Luis Obispo County Water Planning Area 16 4-56
Figure 4.17 San Luis Obispo County Water Planning Areas..... 4-58

PART II: WATER RESOURCE ANALYSIS

4.1 OBJECTIVES

The purpose of this chapter is to evaluate and compare the available water supplies (apart from the untreated ocean) to the water demands for the different water planning areas. This was accomplished by reviewing or developing the following:

- Current water supplies and demands based on available information
- Forecast water demands and water supplies available in the future under current land use policies and designations
- Criteria under which there is a shortfall when looking at supplies versus demands
- Criteria for analyzing potential water resource management strategies, projects, programs, or policies
- Potential water resource management strategies, projects, programs, or policies to resolve potential supply deficiencies

4.2 OVERVIEW OF GROUNDWATER RESOURCES

The information presented below was extracted from Technical Memorandum Number 2, Water Supply Inventory and Assessment-Description of Water Resources, prepared by Wallace Group in association with Fugro West, Inc. and Cleath-Harris Geologists. For more detailed discussions on this information, please refer to Appendix B. This overview focuses on groundwater resources throughout the County.

4.2.1 North Coast Sub-Region

The North Coast Sub-Region is comprised of five Water Planning Areas (WPAs), including San Simeon (WPA 1), Cambria (WPA 2), Cayucos (WPA 3), Morro Bay (WPA 4), and Los Osos (WPA 5) summarized in Table 4.1. A brief description of the basins within each WPA is provided below, with details on groundwater supply aquifers, groundwater users, basin yield, water quality, and water availability.

Groundwater levels in North Coast Sub-Region basins are generally highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Shallow alluvial deposits for these basins are typically more susceptible to drought impacts than deeper formation aquifers, since they have less groundwater in storage. Significant lowering of basin groundwater levels at or below sea level near the coast can lead to seawater intrusion and degradation of water quality in both shallow and deep aquifer zones.

Table 4.1 North Coast Sub-Region Groundwater Basins			
WPA No.	**WPA Name**	**Groundwater Basin Name**	**Safe Basin Yield (AFY)**
1	San Simeon	San Carpoforo Valley	No estimate available
		Arroyo de la Cruz Valley	1,244
		Pico Creek Valley	120
2	Cambria	San Simeon Valley	1,040
		Santa Rosa Valley	2,260
		Villa Valley	1,000(1)
3	Cayucos	Cayucos Valley	600(1)
		Old Valley	No estimate available
		Toro Valley	532
4	Morro Bay	Morro Valley	1,500
		Chorro Valley	2,210
5	Los Osos	Los Osos Valley	3,200

Notes:

1. 1958 Department of Water Resources estimate. There has been no subsequent basin study to confirm or update this estimate

4.2.1.1 San Simeon Water Planning Area (WPA) 1

Groundwater basin descriptions in WPA 1 include San Carpoforo Valley, Arroyo de la Cruz Valley, and Pico Creek Valley.

4.2.1.1.1 *San Carpoforo Valley Groundwater Basin*

The San Carpoforo Valley Groundwater Basin is located in WPA 1 of the North Coast sub-region (Figure 4.1) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-33 (DWR 2003). The basin underlies the San Carpoforo Valley, is 200 acres (0.3 square miles) in size, and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in San Carpoforo Creek and to a lesser extent percolation of precipitation and irrigation return flows. The groundwater storage capacity was estimated as 1,800 acre-feet (AF). There are no current estimates of actual groundwater in storage volumes. The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

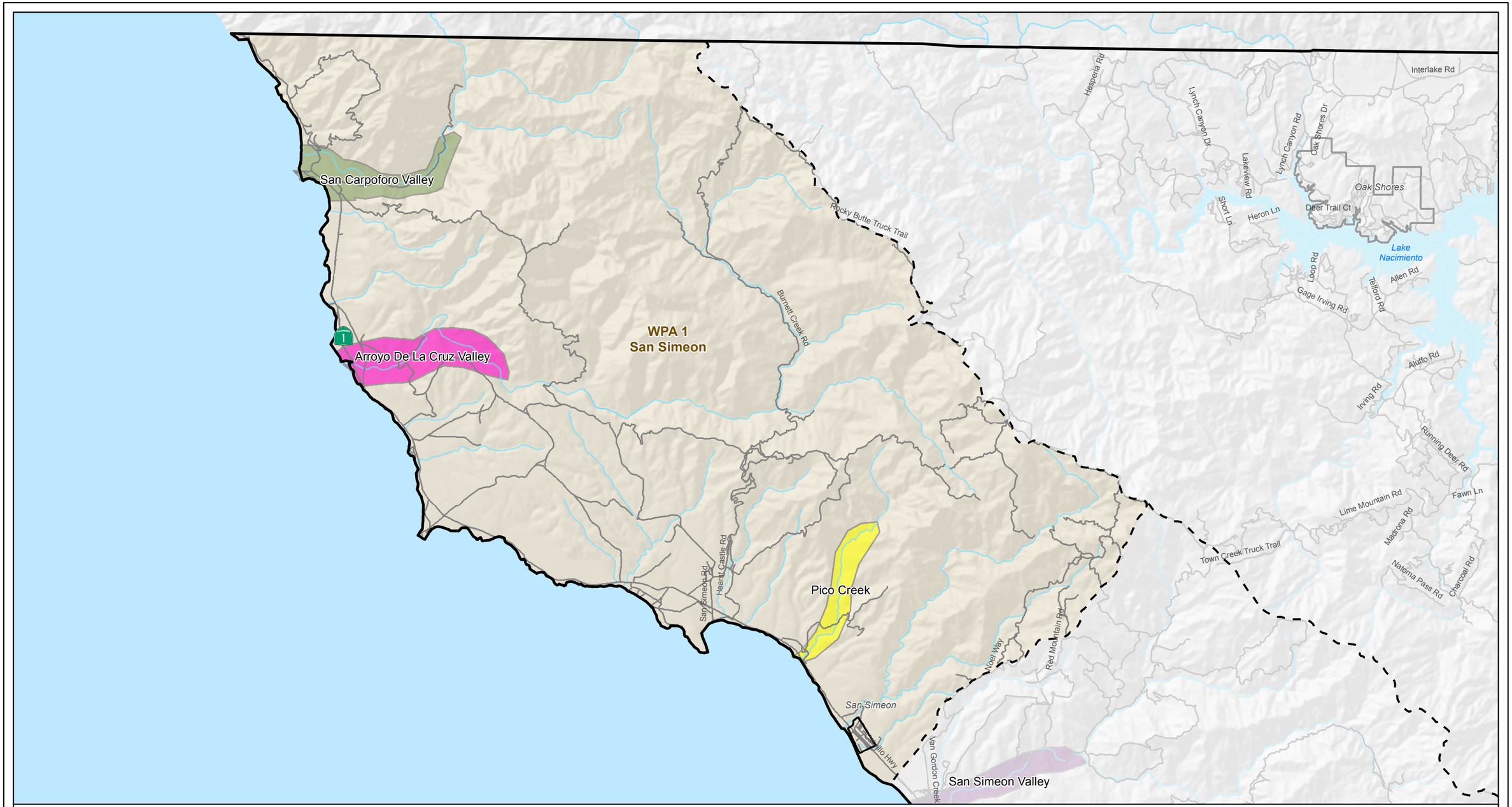

Figure 4.1
San Luis Obispo County
Water Planning Area 1
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. There are no estimates of basin yield. No information is available describing water quality in the basin. The primary constraints on water availability in the basin include physical limitations and potential water quality issues.

As discussed above, groundwater levels in this basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

4.2.1.1.2 *Arroyo De La Cruz Valley Groundwater Basin*

The Arroyo De La Cruz Valley Groundwater Basin is located in WPA 1 of the North Coast sub-region (Figure 4.1) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-34 (DWR 2003). The basin is 750 acres (1.2 square miles) in size and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from percolation of surface flows in Arroyo de la Cruz, deep percolation of precipitation, and agricultural irrigation return flows. The groundwater storage capacity is estimated as 6,600 AF; however, the actual amount in groundwater storage is unknown. The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. The safe yield of the basin was estimated to be 1,244 AFY (Envicom, 1982). Groundwater samples taken from four wells from 1957 to 1985 show total dissolved solids concentration ranging from 211 to 381 mg/L. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. Groundwater levels in the basin are likely highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

4.2.1.1.3 *Pico Creek Valley Groundwater Basin*

The Pico Creek Valley Groundwater Basin is located in WPA 1 of the North Coast sub-region (Figure 4.1). This basin is not formally defined under California's Groundwater

Bulletin 118 program. The basin is 62.5 acres (about one-tenth of a square mile) in size and underlies Pico Creek Valley (Cleath, 1986). The basin is bounded by the Pacific Ocean to the west and extends inland about 7,000 feet under the stream channel and floodplain of the Pico Creek. From the Pacific Ocean to about 1,200 feet inland, the basin is undeveloped. The Hearst Ranch is located from 1,200 feet inland to about 4,000 feet inland.

The main water-bearing unit in the basin is the Pico Creek alluvium (Cleath, 1986). Recharge to the basin comes primarily from seepage of surface flows in Pico Creek and deep percolation of precipitation. Historically, the creek flows during the winter months and does not flow during the summer months. The alluvium between the ocean and Hearst Ranch is divided into a shallow and a deep aquifer, where the two aquifers are separated by a clay zone that acts as an aquitard. The clay zone is not present upstream of the Hearst Ranch and the alluvium eastward from there forms a single aquifer.

The basin contains groundwater stored both above sea level and below sea level. The available groundwater in storage above sea level is about 40 AF (Cleath, 1986). Much of the groundwater in storage below sea level has experienced sea water intrusion and is of lesser water quality. The available groundwater in storage below sea level is less than 50 AF.

Water users in the basin include the San Simeon Community Services District (San Simeon CSD) and Hearst Ranch. The basin yield is estimated to be 120 AFY (Cleath, 1986). Contamination of water supply wells due to seawater intrusion is a major water quality concern in the basin (Cleath, 1986). Lowering of groundwater levels below sea level in the basin during the summer months when creek flows are absent and pumping is active can result in the landward migration of the sea water/fresh groundwater interface. Since at least the mid-1980s, sea water intrusion has occurred within the Pico Creek Valley Groundwater Basin (Cleath, 1986). Although seawater intrusion has increased salinity levels in groundwater pumped from local water supply wells, it has not degraded water quality to the point that the water is non-potable. The 2008 Consumer Confidence Report for two San Simeon CSD wells reported that measured concentrations of all analyzed contaminants were below their respective Maximum Contaminant Level (MCL) or Regulatory Action Level (AL) values.

The primary constraints on water availability in the basin include physical limitations and potential water quality issues. Currently the water supply of San Simeon CSD is at a certified Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (SLO County, 2008). As a result, a moratorium on development has been in place since 1991.

4.2.1.2 Cambria WPA 2

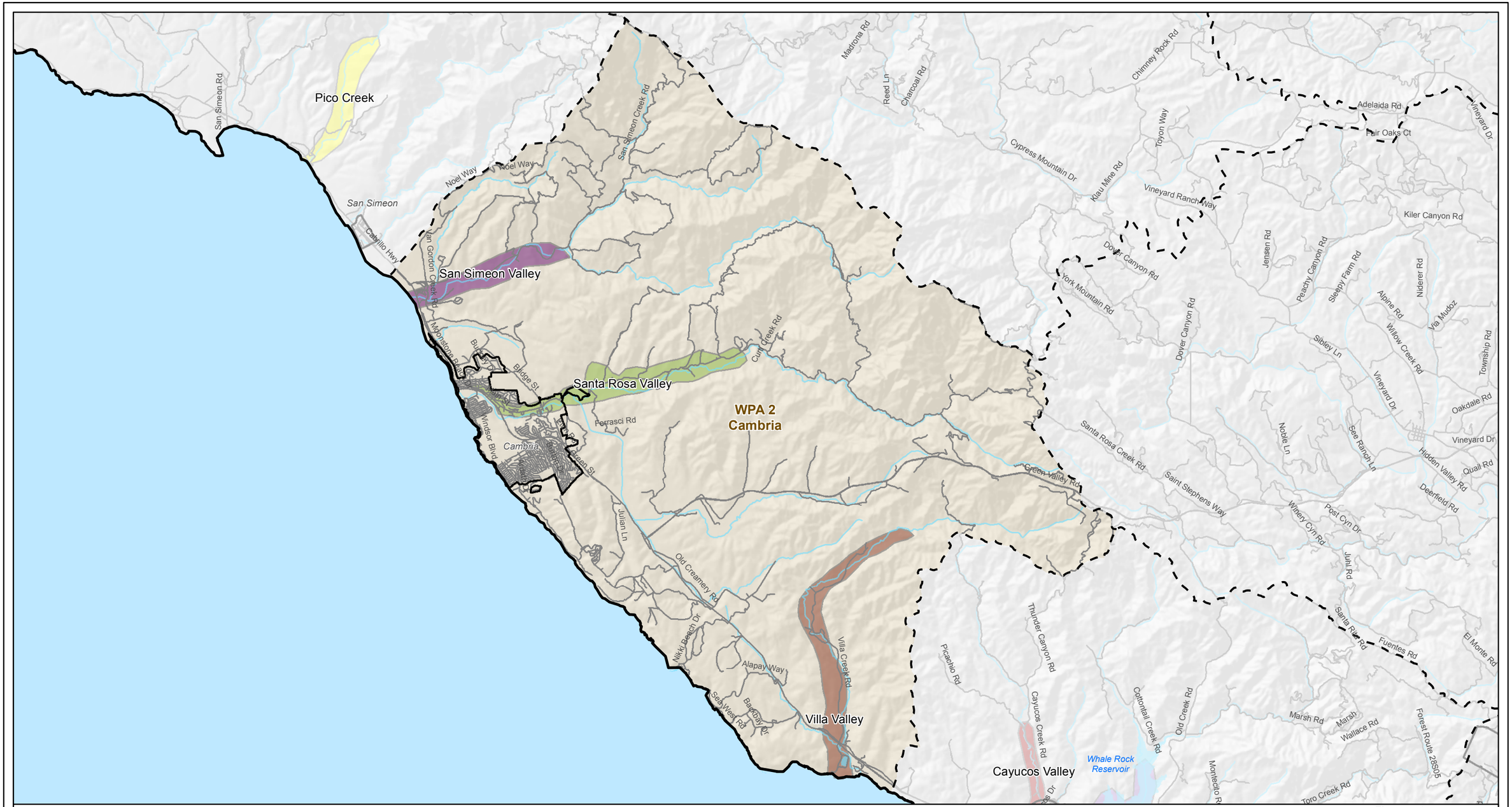
Groundwater basin descriptions in WPA 2 include San Simeon Valley, Santa Rosa Valley, Villa Valley.

4.2.1.2.1 *San Simeon Valley Groundwater Basin*

The San Simeon Valley Groundwater Basin is located in the WPA 2 of the North Coast sub-region (Figure 4.2) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-35 (DWR 2003). The basin underlies San Simeon Valley and is 620 acres (1 square mile) in size, and is bounded by the Pacific Ocean, the Santa Lucia Range, and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in San Simeon and Van Gordon creeks, deep percolation of precipitation, and agricultural irrigation return flows.

Groundwater is found in alluvial deposits underlying San Simeon Creek (DWR 2003). The alluvium's thickness varies from about 100 feet beneath the center of the valley to more than 120 feet at the coast (Yates and Van Konyenburg, 1998). The groundwater storage capacity is estimated as 4,000 AF; however the actual amount in groundwater storage is unknown (DWR 2003). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

Water users in the basin include the Cambria Community Services District (Cambria CSD) and overlying users. The safe yield of the basin was estimated to be 1,040 AFY (Cambria County Water District, 1976). Groundwater samples from 31 wells collected from 1955 to 1994 show total dissolved solids (TDS) concentration ranging from 46 to 2,210 mg/L (DWR 2003). Samples from three public supply wells show a TDS concentration range of 400 to 420 mg/L with an average concentration of 413 mg/L. Manganese concentrations in the downstream regions of the basin have exceeded the MCL, with a range of 0.002 to 1.6 mg/L (Yates and Van Konyenburg, 1998). The 2007 Consumer Confidence Report for Cambria CSD reported that measured concentrations of all analyzed contaminants were below their respective MCL or Regulatory AL values. In particular, the measured TDS concentration was 440 mg/L.



Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 2
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1 2 Miles

Figure 4.2
San Luis Obispo County
Water Planning Area 2
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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The primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Water Resources Control Board (State Board) allows a maximum extraction of 1,230 AFY in the San Simeon Valley Groundwater Basin and a maximum dry season extraction of 370 AF (Cambria CSD Water Master Plan (WMP), 2008). Although the actual dates will vary each year depending on creek flows and rainfall occurrence, the dry season generally spans from May through October. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (Cambria CSD WMP, 2008).

4.2.1.2.2 *Santa Rosa Valley Groundwater Basin*

The Santa Rosa Valley Groundwater Basin is located in WPA 2 of the North Coast sub-region (Figure 4.2) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-36 (DWR 2003). The basin underlies the Santa Rosa Valley, is 4,480 acres (7 square miles) in size, and is bounded by the Pacific Ocean and impermeable rocks. Recharge to the basin comes primarily from seepage of surface flows in Santa Rosa Creek and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

According to Bulletin 118, the main water-bearing unit in the basin is unconfined alluvium (DWR 2003). The groundwater storage capacity of the basin has been estimated as 24,700 AF (DWR 1975). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions. The actual amount of groundwater in storage is unknown.

Water users in the basin include the Cambria CSD and overlying users. The safe yield of the basin has been estimated to be 2,260 AFY (Cambria County Water District, 1976). Groundwater sampled from one public supply well had a total dissolved solids concentration of 680 mg/L. Increases in measured groundwater chloride concentration suggest the possibility of seawater intrusion into the basin (DWR 1975). From 1955 to 1975, measured chloride concentration increased from 80 mg/L to 933 mg/L (DWR 1975), where background chloride concentration typically range from 30 to 270 mg/L (Yates and Van Konyenburg, 1998).

The Cambria CSD's Urban Water Management Plan (UWMP) (Cambria CSD, 2005) noted the existence of an MtBE plume moving towards its Santa Rosa well field. The UWMP also noted that although the plume was still present at the time the UWMP was prepared, Cambria CSD was taking action to remove the MtBE from the groundwater through a remediation program.

The primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Board allows a maximum extraction of 518 AFY in

the Santa Rosa Valley Groundwater Basin and a maximum dry season extraction of 260 AF (Cambria CSD WMP, 2008). The California Coastal Commission Coastal Development Permit defines the Santa Rosa Creek dry period as July 1 to November 20. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (Cambria CSD WMP, 2008).

4.2.1.2.3 *Villa Valley Groundwater Basin*

The Villa Valley Groundwater Basin is located in WPA 2 in the North Coast sub-region (Figure 4.2) and encompasses approximately 980 acres (1.5 square miles). The basin is bounded by the Pacific Ocean and by relatively impermeable rocks. This basin has been designated by the DWR as Basin 3-37 (DWR 2003). Recharge to the basin comes primarily from seepage of surface flows in Villa Creek, deep percolation of precipitation, and residential/agricultural return flows.

The aquifer consists of alluvial deposits that are up to approximately 50 feet thick. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural and residential purposes by overlying users. The projected safe seasonal yield of the Villa Valley Groundwater Basin was historically estimated at 1,000 AFY (DWR 1958). There has been no subsequent basin study to confirm or update this estimate.

Seawater intrusion has been reported historically in the lower portion of the basin (DWR 1975). Upstream of sea water influence, the TDS concentration averaged 500 mg/L in samples collected from three wells between 1965 and 1970 (STORET Legacy Database).

Constraints on water availability in this basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts. For the upper Villa Valley, water level and well capacity declines during drought limit the availability of the resource, while in the lower valley area; sea water intrusion is the primary constraint.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for the Villa Valley Groundwater Basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful for these studies. Additional information may be available from the DWR and private sources.

4.2.1.3 Cayucos WPA 3

Groundwater basin descriptions in WPA 3 include Cayucos Valley, Old Valley, and Toro Valley.

4.2.1.3.1 *Cayucos Valley Groundwater Basin*

The Cayucos Valley Groundwater Basin is located in WPA 3 in the North Coast sub-region (Figure 4.3) and encompasses approximately 580 acres (0.9 square miles). The basin is bounded by the Pacific Ocean and by relatively non-water bearing rock units (Cleath, T. S., 1988). This basin has been designated by the DWR as Basin 3-38. Recharge to the basin comes primarily from seepage of surface flows in Cayucos Creek, deep percolation of precipitation, and residential/agricultural return flows.

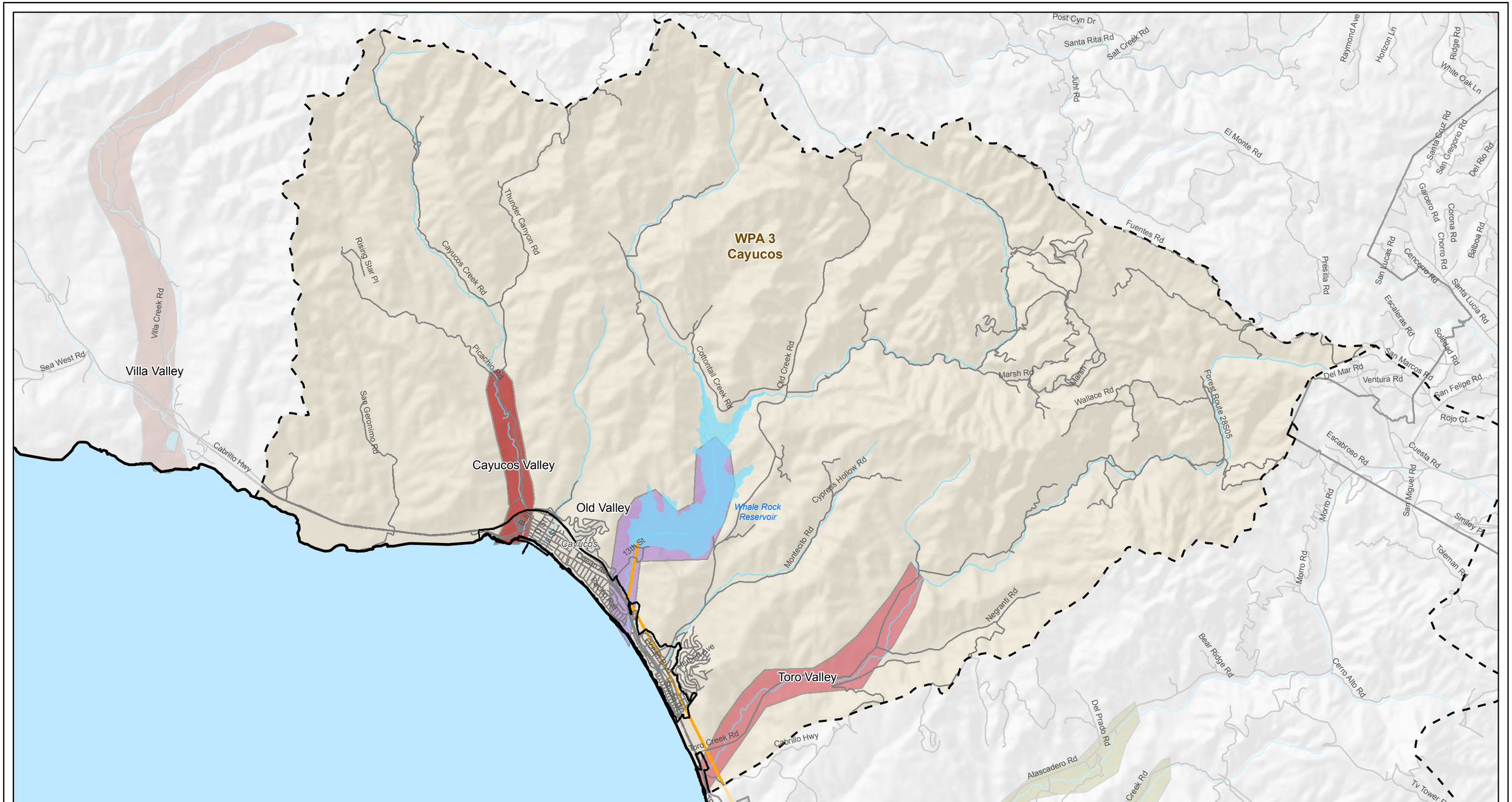
Basin groundwater users include a small public water system (mobile home park) and overlying residential and agricultural users. The Morro Rock Mutual Water Company and Paso Robles Beach Water Association service areas overlie a portion of the basin; however, these purveyors do not pump from the Cayucos Valley basin.

The water supply aquifer is within the alluvial deposits of Cayucos Creek, which are comprised of gravel, sand, silt and clay. These alluvial deposits extend up to an estimated 80 feet thick, and are at least 68 feet thick at a distance of one mile inland from the coast (Cleath, T. S., 1988). The projected safe seasonal yield of the Cayucos Valley Groundwater Basin was historically estimated at 600 AFY (DWR 1958). There has been no subsequent basin-wide studies to confirm or update this estimate. Estimated production from the basin was 350 AFY in 1987 (Cleath, T. S., 1988).

There is evidence of sea water intrusion in the basin extending to the mobile home park wells and ranch wells immediately upstream of Highway 1. The TDS concentration of groundwater upstream of the sea water influence is close to 500 mg/L (Cleath, T. S., 1988).

Constraints on water availability in this basin include both physical limitations and water quality issues. Water level and well capacity declines during drought will limit the availability of the resource, while in the lower valley area; sea water intrusion will be the primary constraint.

Some of the published hydrogeologic information for the Cayucos Valley Groundwater Basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.



Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
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Color Scheme
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- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 0.75 1.5 Miles

Figure 4.3
San Luis Obispo County
Water Planning Area 3
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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4.2.1.3.2 *Old Valley Groundwater Basin*

The Old Valley Groundwater Basin is in WPA 3 in the North Coast sub-region (Figure 4.3) and encompasses approximately 750 acres (1.2 square miles). The basin is bounded by the Pacific Ocean and by relatively impermeable rocks. This basin, which includes Whale Rock Reservoir, was designated by the DWR as Basin 3-39. Basin recharge upstream of the reservoir comes primarily from deep percolation of precipitation and seepage from surface flows in Cottontail Creek and Old Creek. Below the dam, recharge includes dam underflow and seepage from reservoir releases.

Basin groundwater users downstream of Whale Rock reservoir include members of the Cayucos Area Water Organization (CAWO), which include Morro Rock Mutual Water Company (Morro Rock MWC), Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A), the Cayucos Cemetery District (CCD), and two landowners. The combined groundwater and Whale Rock Reservoir surface water allocation for CAWO in Old Valley is 600 AFY, distributed as follows:

- Morro Rock MWC: 170 AFY
- PRBWA: 222 AFY
- CSA 10A: 190 AFY (plus 25 AFY of San Luis Obispo's entitlement via exchange for Lake Nacimiento water)
- CCD: 18 AFY
- Downstream land owners: 64 AFY

CAWO agencies receive water directly from the reservoir via the treatment plant and transmission pipeline. Mainini Ranch and Ogle also receive entitlements to 64 AFY of Whale Rock Reservoir. Upstream of the reservoir are residential and agricultural overlying users. Whale Rock Reservoir water users, including the City of San Luis Obispo, Cal Poly, and the California Men's Colony, are discussed later in this section.

The water supply aquifer is within the alluvial deposits of Old Creek and upstream tributary valleys. These alluvial deposits extend up to an estimated 72 feet thick (Cleath & Associates, 1993, 1995). Production from wells in the lower Old Valley Groundwater Basin (below the reservoir) ranged from 389 to 603 AFY, with an average of 505 AFY between 1981 and 1992. The lower basin was estimated to have a yield capable of providing the entire 600 AFY CAWO allocation, although releases from the reservoir were necessary to preclude sea water intrusion (Cleath & Associates 1993, 1995). With direct deliveries of CAWO downstream entitlement to a water treatment plant beginning in 1997, re-evaluation of the yield in this part of the basin has not been a high priority. The TDS concentration of the groundwater below the reservoir averaged 440 mg/L in 2008 (CSA 10/10A, 2008).

Constraints on water availability in this basin include physical limitations, water rights, and environmental considerations. Shallow alluvial deposits upstream of the reservoir are susceptible to drought impacts, having limited groundwater in storage. For the area below

the reservoir, dam underflow may provide a source of recharge. Water agreements limit the amount of groundwater available to the members of CAWO and downstream landowners in Old Valley.

4.2.1.3.3 *Toro Valley Groundwater Basin*

The Toro Valley Groundwater Basin is in WPA 3 in the North Coast sub-region (Figure 4.3) and encompasses approximately 510 acres (0.8 square miles). The basin is bounded by the Pacific Ocean and by generally non-water bearing rocks. This basin is designated by the DWR as Basin 3-40 (Cleath, T. S., 1988; DWR 2003). Basin recharge comes primarily from seepage of surface flows in Toro Creek, deep percolation of precipitation, and residential/agricultural return flows.

Basin water users include Chevron (with agricultural tenants), and overlying residential and agricultural users. The water supply aquifer is within the alluvial deposits drained by Toro Creek. These alluvial deposits extend up to an estimated 80 feet thick, and average approximately 50 feet thick in the lower portion of the basin (McClelland Engineers, 1988). The projected safe seasonal yield of the Toro Valley Groundwater Basin was historically estimated at 500 AFY (DWR 1958). Estimates of hydrologic budget items for 1987 conditions included 591 AFY of percolation of precipitation and 532 AFY of basin groundwater production. Given the shallow nature of alluvial deposits and limited groundwater in storage, the safe yield estimate for this Master Water Report Update is limited to the documented historical production that has not resulted in water supply problems, which to date has been up to 532 AFY.

Water quality data for a well approximately 0.7 miles inland of the coast between 1954 and 1987 indicates mild sea water intrusion at this location in the basin, with chloride concentrations up to 129 mg/L. The TDS concentration typically ranges between 400 and 700 mg/L (STORET Legacy Database and DWR 2003). In the lower basin area near Highway 1, petroleum hydrocarbon contamination associated with the Chevron marine terminal has been detected in groundwater and remedial activities are ongoing (GeoTracker Database).

Constraints on water availability in this basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. For the upper basin, water level and well capacity declines during drought will limit water availability, while in the lower valley area, sea water intrusion and petroleum hydrocarbon contamination are the primary constraints.

Some of the published hydrogeologic information for this groundwater basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

4.2.1.4 Morro Bay WPA 4

Groundwater basin descriptions in WPA 4 include Morro Valley and Chorro Valley.

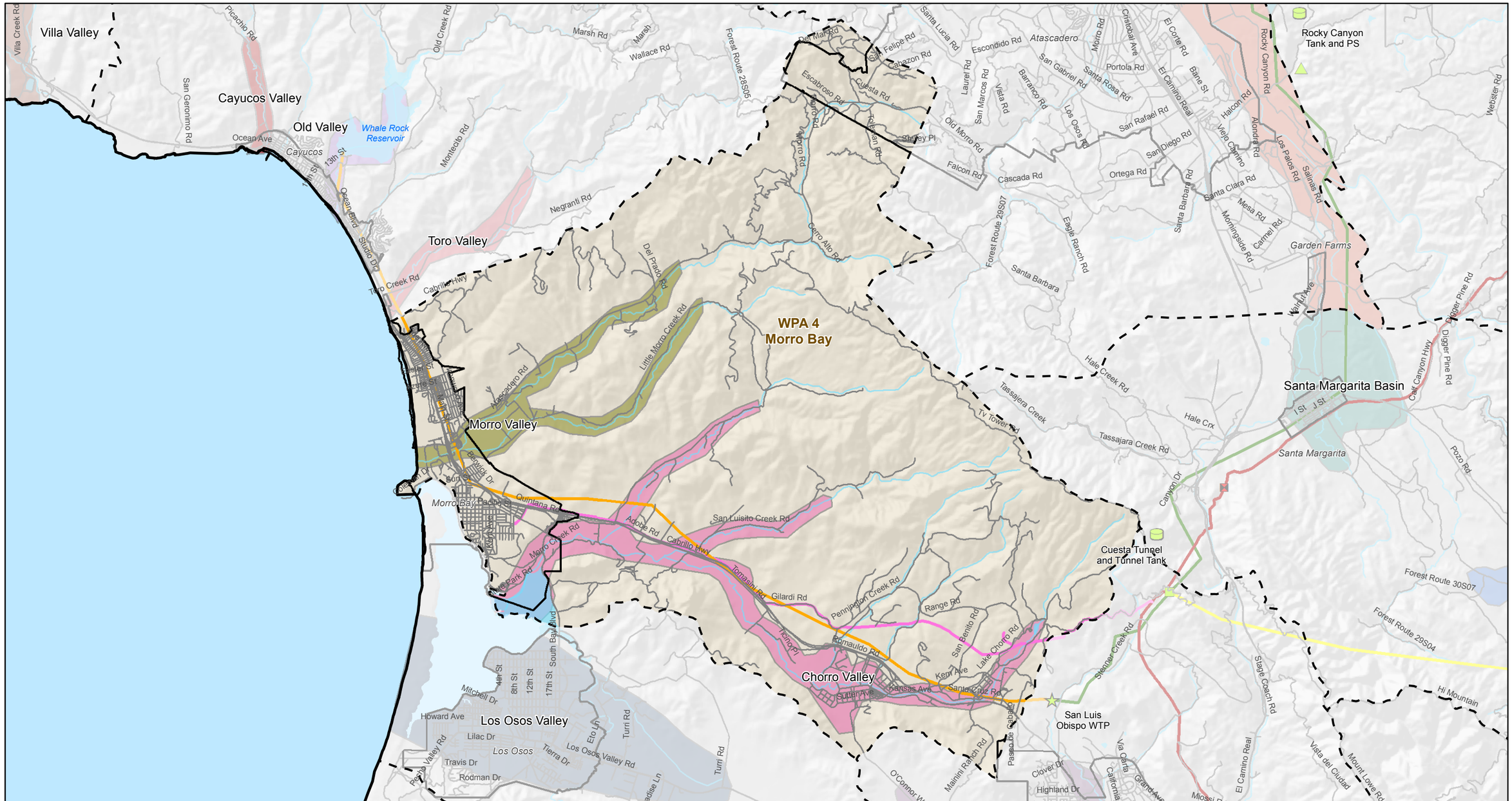
4.2.1.4.1 *Morro Valley Groundwater Basin*

The Morro Valley Groundwater Basin is in WPA 4 in the North Coast sub-region (Figure 4.4) and encompasses approximately 1,200 acres (1.9 square miles). The basin is bounded by the Pacific Ocean, the Morro Bay estuary, and by impermeable rock units. This basin is designated by the DWR as Basin 3-41. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area southwest of the narrows near Highway 1 (DWR 2003). Recharge to the basin comes primarily from seepage of surface flows in Morro Creek and Little Morro Creek, deep percolation of precipitation, and residential/agricultural return flows. The water supply aquifers are predominantly within alluvial deposits drained by Morro Creek, which are comprised of gravel, sand, silt and clay. The alluvial deposits are typically up to 80 feet thick (Cleath & Associates, 2007).

Basin groundwater users include the City of Morro Bay, Morro Bay power plant, a cement plant, a small public water system (mobile home park), and residential and agricultural overlying users. The City of Morro Bay pumps sea water and Morro Creek underflow from the basin, the latter with a permitted allocation of 581 AFY from the State Board.

The existing perennial yield of the Morro Valley Groundwater Basin is estimated at 1,500 AFY. Groundwater modeling performed to evaluate the impacts of sea water well operation on the basin indicated that concurrent operation of the City of Morro Bay's sea water and fresh water supply wells could interfere during drought conditions such that the fresh water wells would be subject to sea water intrusion (Cleath & Associates, 1993a; 1993b).

Sea water intrusion and nitrates are the predominant concerns for water quality in this basin. In the mid-1980's TDS concentrations in groundwater downstream of the narrows near Highway 1 began to exceed 1,000 mg/L seasonally due to sea water intrusion. More recently, basin TDS concentrations (measured in 2007) were typically between 400 and 800 mg/L and increasing toward the coast, except for an area beneath agricultural fields in the lower valley where TDS concentrations reached 1000 mg/L, and nitrate concentrations reached 220 mg/L as nitrate (Cleath & Associates 1993a; 2007).



Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 4
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1 2 Miles

Figure 4.4
San Luis Obispo County
Water Planning Area 4
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San Luis Obispo County Flood Control and Water Conservation District

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Primary constraints on water availability in this basin include physical limitations, water quality issues, and water rights. Shallow alluvial deposits are typically more susceptible to drought impacts. For the upper Morro Valley, water level and well capacity declines during drought would limit the availability of the resource, while in the lower valley area, sea water intrusion would be the primary constraint. Elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field, where appropriative water right permits from the State Board also limit production.

4.2.1.5 Chorro Valley Groundwater Basin

The Chorro Valley Groundwater Basin is in WPA 4 in the North Coast sub-region (Figure 4.4) and encompasses approximately 3,200 acres (5 square miles), although the effective extent of saturated basin deposits covers an estimated 1,900 acres (3 square miles). The basin is bounded by the Morro Bay estuary and elsewhere by impermeable rock units (Cleath-Harris Geologists, 2009). This basin is designated by the DWR as Basin 3-42. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area near the Morro Bay estuary. Recharge to the basin comes primarily from seepage of surface flows in Chorro Creek and tributaries (including wastewater treatment plant discharges and releases from Chorro Reservoir), deep percolation of precipitation, and residential/agricultural return flows. The water supply aquifers are alluvial deposits drained by Chorro Creek, which are comprised of gravel, sand, silt and clay. These alluvial deposits are 50-70 feet thick downstream of Canet Road (Cleath-Harris Geologists, 2009).

Basin groundwater users include the City of Morro Bay, San Luis Obispo County, California State Parks, California State Polytechnic University, California National Guard, California Men's Colony, and residential and agricultural overlying users. The City of Morro Bay pumps Chorro Creek underflow from the basin and has appropriative rights to 1,142.5 AFY. Safe yield under drought conditions is estimated at 566 AFY through the State Board.

The perennial yield of the Chorro Valley basin is estimated for planning purposes at 2,210 AFY (Cleath & Associates, 1993a; DWR 1958). Nitrate concentrations are a concern for water quality in the lower portion of this basin. Sea water intrusion has been documented historically and is a potential future concern in the Chorro Flats area, should pumping patterns change significantly. Recent basin TDS concentrations (measured in 2008) were typically between 500 and 700 mg/L (DWR 1975; Cleath-Harris Geologists, 2009).

Constraints on groundwater availability in this basin include physical limitations, water quality issues, environmental demand, and water rights. In the Chorro Valley upstream of the Chorro Creek discharge point for the California Men's Colony wastewater treatment plant, water level and well capacity declines during drought will limit the availability of the resource. The wastewater plant discharges enter the basin as imported water sources, and therefore provide additional available water for basin wells and environmental demand below the discharge point. In the lower valley area, sea water intrusion would be a primary

constraint during drought. The elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field where production is also limited by appropriative water right permits from the State Board. These permits for underflow production by the City of Morro Bay have also been conditioned to require minimum surface flows in Chorro Creek for Steelhead habitat protection.

4.2.1.6 Los Osos WPA 5

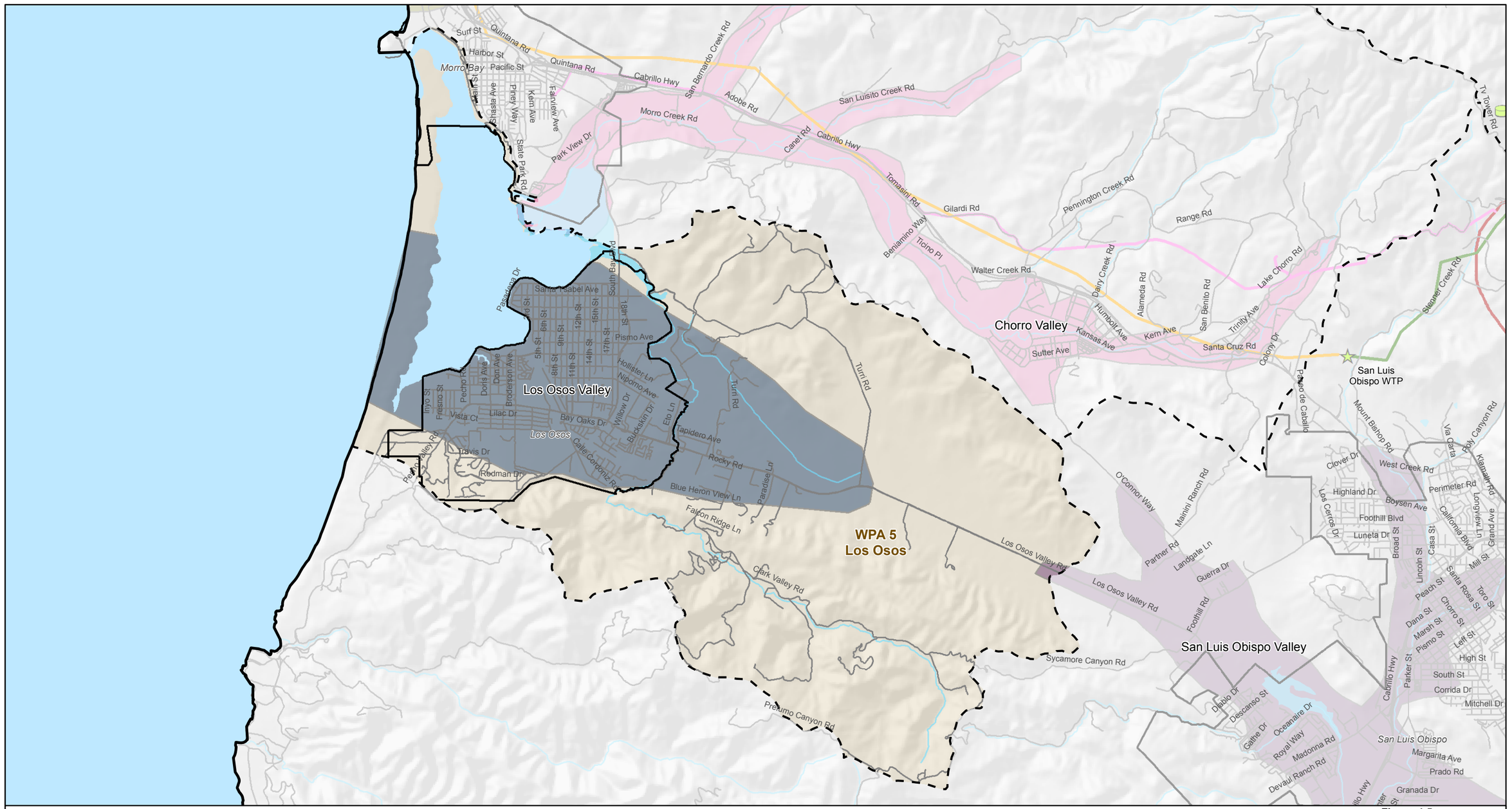
Groundwater basin descriptions in WPA 5 include Los Osos Valley.

4.2.1.6.1 *Los Osos Valley Groundwater Basin*

The Los Osos Valley Groundwater Basin is part of the North Coast sub-region (Figure 4.5) and encompasses approximately 10 square miles, of which 3.3 square miles underlie the Morro Bay estuary and sand spit, and 6.7 square miles underlie the communities of Los Osos, Baywood Park, and the Los Osos Creek Valley. The basin is bounded by the Pacific Ocean, and elsewhere by relatively impermeable rocks. The southern basin boundary also runs parallel to the main strand of the Los Osos fault. This basin is designated by the DWR as Basin 3-8 (DWR, 2003; Cleath & Associates, 2005). Freshwater recharge to the basin comes primarily from seepage of surface flows in Los Osos Creek, deep percolation of precipitation, and residential/agricultural return flows. Sea water intrusion is also a significant component of basin inflow under current conditions.

The basin is generally characterized as having five (5) zones. The upper aquifer (Zone C) reaches 200 feet thick. The lower aquifer (Zones D and E) is up to several hundred feet thick adjacent to the main strand of the Los Osos fault. There is also a perched aquifer less than 50 feet thick in the dune sands west of the Los Osos Creek Valley (Zone B), and a shallow alluvial aquifer typically 70 feet thick in the creek valley (Zone A). The lower aquifers extend beneath the alluvial aquifer in the creek valley (Yates and Wiese, 1988; Cleath & Associates, 2005, ISJ Working Group, 2010).

Basin groundwater users in the Los Osos Valley basin include Golden State Water Company, S&T Mutual, the Los Osos Community Services District, and overlying private well users. The three local water purveyors, along with the County of San Luis Obispo, are currently preparing a Basin Management Plan (BMP) under a court-approved Interlocutory Stipulated Judgment (ISJ Working Group).



Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 5
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 0.75 1.5 Miles

Figure 4.5
San Luis Obispo County
Water Planning Area 5
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Estimates of the safe yield of the groundwater basin have been developed for the current condition, with existing septic systems in place, and assuming no new water development. The safe yield estimate of the basin under current conditions is 3,200 AFY (ISJ Working Group, 2010). Through the development of a BMP, it is the goal, among others, of the ISJ Working Group, to "provide for a continuously updated hydrologic assessment of the Basin, its water resources and safe yield."

TDS concentrations are generally between 200 mg/L and 400 mg/L. Nitrates are the primary constituent of concern in the upper aquifer, with concentrations in excess of the State drinking water standard of 45 mg/L as nitrate throughout the urban area (Cleath & Associates, 2005, 2006a, 2006b).

Lower aquifer displays characteristics of sea water intrusion on the west side of the basin. TDS concentrations also vary significantly by location, and have been reported at up to 950 mg/L in west side supply wells, although average values in the urban area are closer to 500 mg/L. Sea water intrusion is the main concern for lower aquifer water quality (Cleath & Associates, 2005; GSWC, 2009).

The primary constraint on water availability in the Los Osos Valley Groundwater Basin is deteriorating water quality due to sea water intrusion and nitrate contamination. The County of San Luis Obispo has certified that the basin is currently at a Level III severity rating (resource capacity has been met or exceeded) due to sea water intrusion. Through the development of the BMP, the ISJ Working Group will be evaluating and identifying the management strategies to implement, in coordination with the County's wastewater project, in order to improve conditions in the basin.

4.2.2 South Coast Sub-Region

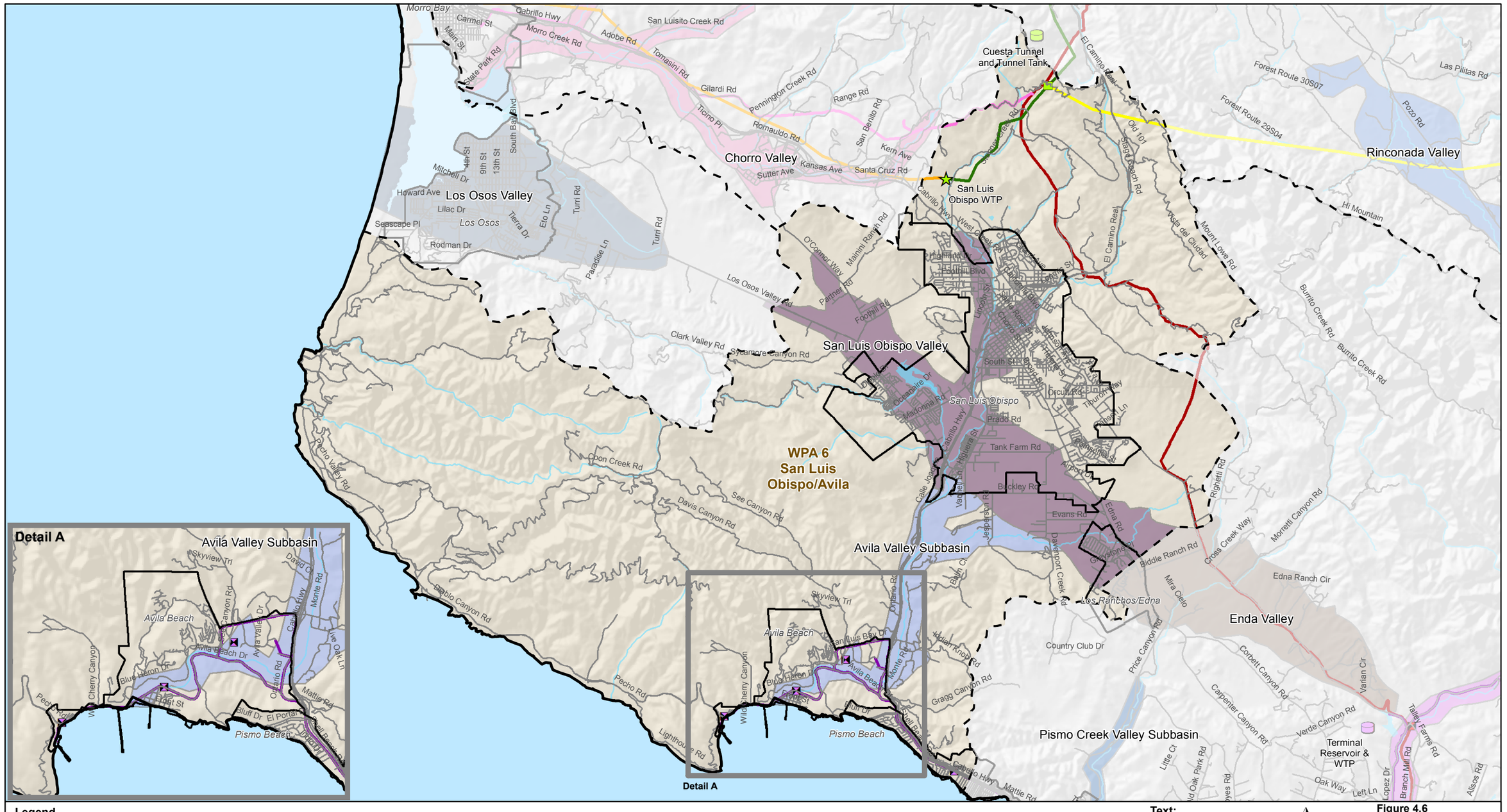
The South Coast Sub-Region is comprised of four Water Planning Areas, including San Luis Obispo/Avila (WPA 6), South Coast (WPA 7), Huasna Valley (WPA 8), and Cuyama Valley (WPA 9) summarized in Table 4.2. A brief description of the basins within each WPA is provided below, with details on groundwater supply aquifers, groundwater users, basin yield, water quality, and water availability.

Table 4.2 South Coast Sub-Region Groundwater Basins				
WPA No.	**WPA Name**	**Groundwater Basin Name**	**Sub-basin/ Management Area**	**Safe Basin Yield (AFY)**
6	San Luis Obispo/Avila	San Luis Obispo Valley(1)	San Luis Valley	2,000
			Edna Valley	4,000
			Avila Valley	No estimate available
7	South Coast	Santa Maria Valley	Pismo Creek Valley	No estimate available
			Arroyo Grande Valley	No estimate available
			Nipomo Valley	No estimate available
			Northern Cities Management Area	5,600-6,800
			Nipomo Mesa Management Area	4,800-6,000(2)
			Santa Maria Valley Management Area	124,000(3)
8	Huasna Valley	Huasna Valley		No estimate available
9	Cuyama Valley	Cuyama Valley		10,000(4)

Notes:
1. A 1991 study reported a sustained yield of the entire San Luis Valley Groundwater Basin under existing conditions at 5,900 AFY.
2. DWR (2002) estimated the dependable yield (DWR 2002. Page ES21) at 4,800 AFY to 6,000 AFY, which was prior to the formal establishment of the NMMA.
3. Safe Yield in the San Luis Obispo County portion of the Santa Maria Valley was estimated between 11,100 AFY and 13,000 AFY prior to the formal establishment of the SMVMA (DWR 2002).
4. There is no separate yield estimate for the San Luis Obispo County portion of the basin.

4.2.2.1 San Luis Obispo/Avila WPA 6

The San Luis Obispo Valley Groundwater Basin is the only DWR-designated basin in WPA 6 (Figure 4.6). A rise in bedrock south of the San Luis Obispo Airport has created two separate subsurface drainage systems, which were designated as the San Luis Valley and Edna Valley Sub-basins in a draft 1997 DWR study. The extension of the San Luis Obispo Creek alluvial deposits between the Los Osos Valley Fault and the Pacific Ocean has been



Legend

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- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Streets
- Major Rivers/Streams
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- Water Planning Area 6
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1 2 Miles

Figure 4.6
San Luis Obispo County
Water Planning Area 6
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added herein as the Avila Valley Sub-basin. The San Luis Valley and Avila Valley Sub-basins of the San Luis Obispo Valley Groundwater Basin are in WPA 6, while the Edna Valley Sub-basin is in WPA 7.

4.2.2.1.1 *San Luis Obispo Valley Groundwater Basin*

The San Luis Obispo Valley Groundwater Basin is part of WPA 6 and WPA 7 and encompasses approximately 13,800 acres (21.6 square miles), including the newly defined Avila Valley Sub-basin (Figure 4.6). The two larger sub-basins underlie the San Luis and Edna Valleys and are bounded by the Santa Lucia Range, the San Luis Range and the Los Osos and Edna faults. The San Luis Valley (WPA 6) and Edna Valley (WPA 7) Sub-basins comprise Basin 3-9 as defined by the DWR (DWR 1997; 2003). The Edna Valley Sub-basin (approximately 4,700 acres) is entirely within unincorporated San Luis Obispo County, while the San Luis Valley Sub-basin (approximately 8,000 acres) includes both unincorporated County and the City of San Luis Obispo.

The safe yield of the entire San Luis Valley Groundwater Basin was determined in a 1991 study based on elements of recharge and discharge, and in a 1997 study using elements of recharge and discharge, the length of the drought periods and the recovery time following them, and an assessment of the behavior of the basin. The 1991 study reported a value of sustained yield of the entire basin under existing conditions at 5,900 AFY. The 1997 DWR study reported a long-term dependable yield value for the San Luis Valley Sub-basin at 2,000-2,500 AFY, and a long-term dependable yield value for the Edna Valley Sub-basin at 4,000-4,500 AFY. DWR‘s 1997 study remains in draft form, but is the only yield estimate that separates the two main basin areas. Therefore, the lower values from the 1997 study, which total 6,000 AFY and closely match the 1991 study value, are selected for planning purposes. In summary, the safe yield of the groundwater basin is estimated at 6,000 AFY, of which 2,000 AFY is assigned to the San Luis Valley Sub-basin, and 4,000 AFY to the Edna Valley Sub-basin (Boyle, 1991; DWR 1997).

The Avila Valley Sub-basin (WPA 6) encompasses approximately 1,100 acres along the San Luis Obispo Creek floodplain between the Los Osos Valley fault and the Pacific Ocean, a distance of close to 7 miles. If the District requires more current or detailed information for this basin, specific studies would be necessary. In preparation for any future studies, the District or other agency could begin collecting available information (such as well logs, pump information, or water quality data) from private and public sources to facilitate future work.

4.2.2.1.2 *San Luis Valley Sub-basin*

The San Luis Valley Sub-basin is generally shallower than the Edna Valley sub-basin. Water supply aquifers are mostly within the alluvial deposits and underlying Paso Robles Formation, with a few productive wells tapping marine sands near Highway 101 and Los Osos Valley Road. These alluvial deposits are up to 60 feet deep and directly overlie bedrock in the western and northern areas of the basin. The Paso Robles Formation

deposits extend to depths of up to 150-200 feet below ground surface. Recharge to the basin comes primarily from seepage of surface flows in San Luis Obispo Creek and tributaries (including discharges from the City of San Luis Obispo Water Reclamation Facility), deep percolation of precipitation, and residential/ agricultural return flows.

Sub-basin groundwater users include the City of San Luis Obispo, California State Polytechnic University, San Luis Coastal Unified School District, Chevron, close to two dozen small public water systems serving various commercial, industrial, and residential properties, agricultural growers, and private residences.

TDS concentrations in the San Luis Valley Sub-basin ranged from 320-630 mg/L (480 mg/L average) in six basin wells tested in 1988. Water quality problems vary by location within the basin, with nitrates, salinity, hardness, and perchloroethylene (PCE) historically being the constituents of greatest concern. PCE contamination was a major issue for two wells used by the City of San Luis Obispo during the period from 1987-91. Two high-capacity wells were also shut down in the 1990s due to elevated nitrate concentrations. Hardness and TDS/chloride are more of a concern in the airport area (Cleath, T. S., 1987, 1988; Boyle, 1991).

The primary constraints on water availability in the San Luis Valley Sub-basin include physical limitations, water quality issues, and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts. Elevated nitrates are a constraint for drinking water availability at some of the City of San Luis Obispo wells. Steelhead habitat protection in San Luis Obispo Creek would also be a potential constraint on groundwater availability. Wastewater discharges from the City of San Luis Obispo Water Reclamation Facility enter San Luis Obispo Creek near the Los Osos Valley Road overpass. Most of this water originates as imported water and provides additional recharge to wells downstream and to the riparian habitat.

4.2.2.1.3 *Avila Valley Sub-basin*

Downstream of the Los Osos Valley fault, the San Luis Obispo Valley Groundwater Basin follows the alluvial deposits of San Luis Obispo Creek and tributaries to the ocean at Avila Beach. These alluvial deposits are typically less than 60 feet deep and are comprised of river gravel and sand beds overlain by floodplain silts and sands. Wells in the alluvium produce as much as several hundred gallons per minute. Wells in the underlying older sedimentary and volcanic beds may produce more than 100 gallons per minute. Some of these deep wells produce warm water in the vicinity of Sycamore Mineral Springs and San Luis Bay Estates. Where these bedrock units occur downstream of the Marre weir and along the coast, brackish or sea water may be encountered.

Avila Valley Mutual Water Company (MWC) and San Miguelito MWC produce water from the Avila Valley Sub-basin as do the agricultural and private water wells of overlying users in the valley. No basin yield numbers have been published for this sub-basin.

The alluvium extends out to the ocean but the fresh water portion of the alluvium is upstream of the Marre weir at San Luis Bay Estates. Prior to installation of this weir in the early 1970s, seawater intrusion had occurred as far up the valley as the confluence with See Canyon Creek. Since the installation of the weir and with the supplemental flow from the City of San Luis Obispo wastewater treatment plant, there has not been any seawater intrusion documented upstream of the weir.

The primary constraints on water availability in the Avila Valley Sub-basin are physical limitations and environmental demand. Shallow alluvial deposits are typically more susceptible to drought impacts. Releases from the City of San Luis Obispo Water Reclamation Facility into San Luis Obispo Creek significantly offset storage losses during drought, but are also intended to support steelhead habitat. Below the Marre Weir, sea water intrusion is the primary constraint to water availability.

4.2.2.2 South Coast WPA 7

Groundwater basin descriptions in WPA 7 include the Edna Valley Sub-basin of the San Luis Obispo Valley Groundwater Basin, along with three sub-basins and three management areas of the Santa Maria Valley Groundwater Basin. Pismo Creek Valley, Arroyo Grande Valley, and Nipomo Valley are DWR-defined sub-basins of the Santa Maria Valley Groundwater Basin (DWR 2002). The Northern Cities Management Area (NCMA), Nipomo Mesa Management Area (NMMA), and Santa Maria Valley Management Area (SMVMA) are court-defined areas within the adjudicated boundary of the Santa Maria Valley Groundwater Basin (Figure 4.7).

4.2.2.2.1 *San Luis Obispo Valley Groundwater Basin*

The San Luis Obispo Valley Groundwater Basin was discussed above.

4.2.2.2.2 *Edna Valley Sub-basin*

The Edna Valley Sub-basin is part of WPA 7, rather than WPA 6, because surface and subsurface flow drains into the Santa Maria Valley Groundwater Basin (Figure 4.7).

Aquifers within the Edna Valley Sub-basin include alluvial deposits, the Paso Robles Formation, and underlying marine sands and shell beds. These basin materials are collectively thicker than basin strata in the San Luis Valley portion of the groundwater basin, reaching depths of over 300 feet (Boyle, 1991; DWR 1997). Recharge to the basin comes primarily from seepage of surface flows (Davenport Creek, West Corral de Piedra Creek, East Corral de Piedra Creek, and Cañada Verde), deep percolation of precipitation, and residential/agricultural return flows.

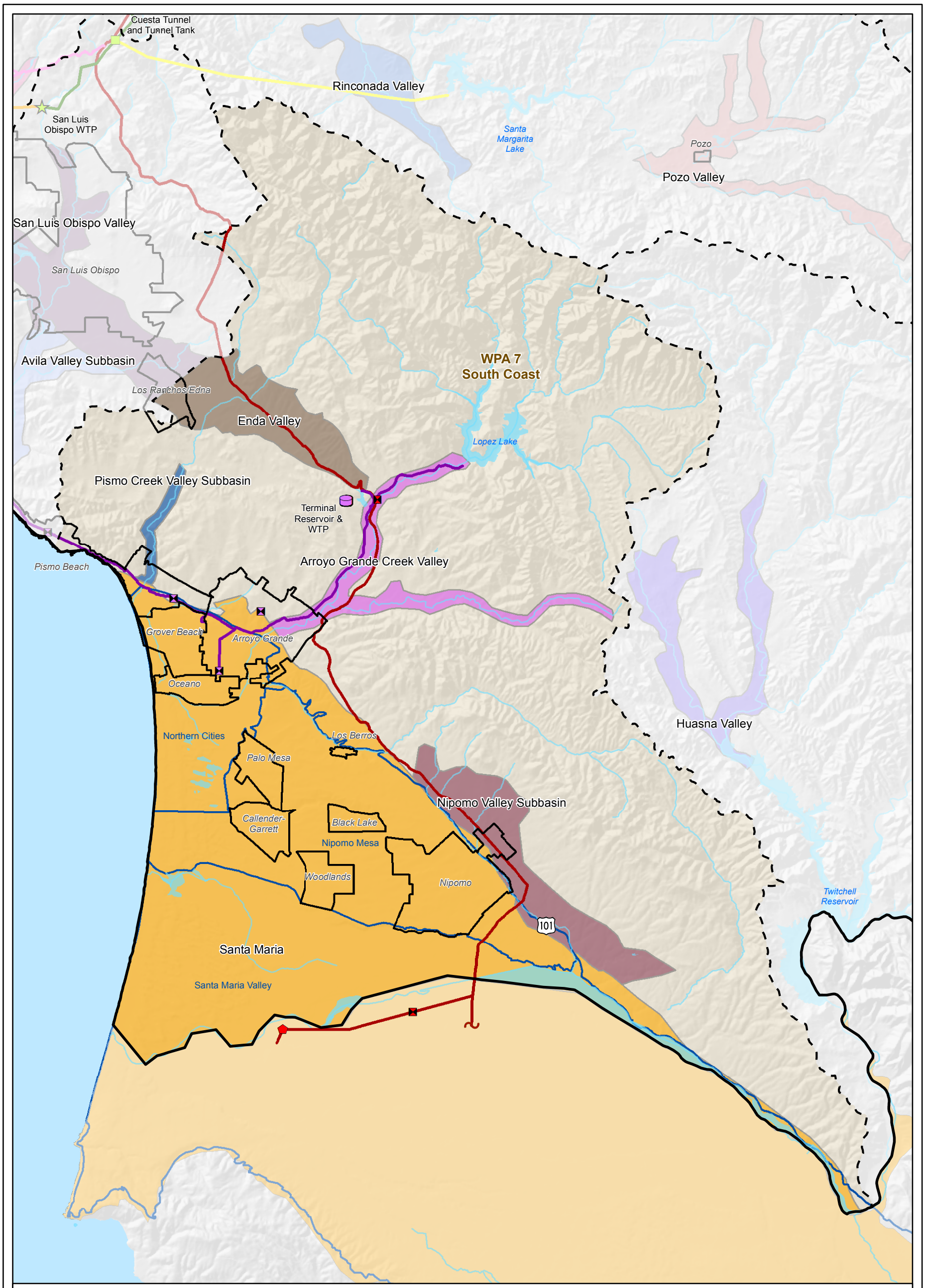

Figure 4.7
San Luis Obispo County
Water Planning Area 7
Master Water Report
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Sub-basin groundwater users include Golden State Water Company, San Luis Country Club (golf course), a few small public water systems, agricultural growers, and private residences. The estimated safe yield of the sub-basin is 4,000 AFY (DWR 1997; see San Luis Valley Sub-basin for additional details). The TDS concentration in the groundwater ranges from 630-780 mg/L (average 690 mg/L), based on public water company testing during 2008. The primary constraints on water availability in the Edna Valley portion of the basin are physical limitations and environmental demand. Lowering groundwater levels due to production in the basin may impact base flows to Pismo Creek, which support steelhead habitat.

4.2.2.2.3 *Santa Maria Valley Groundwater Basin*

The Santa Maria Valley Groundwater Basin is part of WPA 7 (Figure 4.7). There are two boundaries currently in use for this basin, one defined by the California DWR and one defined by the Superior Court of California. The court-defined boundary was developed by a technical committee for use in basin adjudication. This study divides the basin into the court-defined management areas but also includes descriptions on three sub-basins (Pismo Creek Valley, Arroyo Grande Valley, and Nipomo Valley) within the DWR-defined basin that are outside of the adjudicated area. These three alluvial valleys are referred to herein as sub-basins as defined by a 2002 DWR study of the area.

The Santa Maria Valley Groundwater Basin (DWR boundary, including sub-basins) encompasses approximately 184,000 acres (288 square miles), of which approximately 61,220 acres (95.7 square miles) are part of the South Coast Sub-Region within San Luis Obispo County (Figure 4.7). This groundwater basin underlies the Santa Maria Valley in the coastal portion of northern Santa Barbara and southern San Luis Obispo Counties. The basin also underlies Nipomo and Tri-Cities Mesas, Arroyo Grande Plain, with sub-basins in the Nipomo, Arroyo Grande and Pismo Creek Valleys. The basin is bounded on the north by the San Luis and Santa Lucia Ranges, on the east by the San Rafael Mountains, on the south by the Solomon Hills and the San Antonio Creek Valley Groundwater Basin, on the southwest by the Casmalia Hills, and on the west by the Pacific Ocean. In addition, three sub-basins have been identified in San Luis Obispo County that are separated from the main basin by the Wilmar Avenue fault. These are the Pismo Creek Valley (1,220 acres), Arroyo Grande Valley (3,860 acres), and Nipomo Valley (6,230 acres) Sub-basins. The Santa Maria Valley Groundwater Basin is designated by the DWR as Basin 3-9 (DWR 2002, 2003).

The Santa Maria Valley Groundwater Basin has been adjudicated. In 2005, the Superior Court of California entered a Judgment for a basin-wide groundwater litigation case that defined three basin management areas. These management areas are the Northern Cities Management Area (NCMA), the Nipomo Mesa Management Area (NMMA), and the Santa Maria Valley Management Area (SMVMA), which are used herein for planning by the County of San Luis Obispo. The Judgment incorporated a Stipulated Settlement which was made binding by the Court on the signatories, with a declaratory judgment and physical

solution adjudged and decreed in the Judgment after Trial, dated January 25, 2008. The three DWR sub-basins included herein as separate basin components are outside of the adjudicated area.

The San Luis Obispo County portion of the SMVMA and the NMMA are in unincorporated County. The NCMA includes unincorporated County areas and the Cities of Pismo Beach, Arroyo Grande and Grover Beach. The City of Arroyo Grande also overlies a portion of the Arroyo Grande Sub-basin, and the City of Pismo Beach overlies a portion of the Pismo Creek Valley Sub-basin. The basin management areas and sub-basins are shown in Figure 4.7.

4.2.2.2.4 *Pismo Creek Valley Sub-basin*

The Pismo Creek Valley Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by the DWR but outside of the adjudicated basin area. Water supply aquifers are within alluvial deposits in Price Canyon, which is drained by Pismo Creek and its tributaries. The alluvium varies between 200 and 1,500 feet wide and is up to 60-70 feet thick (Cleath, 1986; DWR 2002; Fugro, 2009). Recharge to the sub-basin comes primarily from seepage from Pismo Creek and tributaries, from deep percolation of precipitation, and subsurface inflow from the Edna Valley Sub-basin.

Sub-basin groundwater users include residential and agricultural overlying users. Plains Exploration & Production Company (Oil Field) groundwater supply wells are not located in this sub-basin. The yield of the alluvial basin in the Spanish Spring ranch area has been estimated at 200 AFY, although this is before any consideration for environmental habitat demand (Fugro, 2009). Additional yield would be available from wells tapping the alluvium downstream of Spanish Springs Ranch, below the confluence of Las Cuevitas Creek, which drains the Indian Knob area. There is no estimate of the basin-wide yield.

Results of six groundwater samples collected from sub-basin wells in 1999 indicate a median TDS concentration of 620 mg/L. One well exceeded the State drinking water standards for TDS and sulfate, and most of the wells had iron and/or manganese concentrations above the drinking water standards (Fugro, 2009).

The primary constraints on water availability in the Pismo Creek Valley sub-basin are physical limitations and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts. Steelhead habitat protection in Pismo Creek and tributaries would also be a potential constraint on groundwater availability.

4.2.2.2.5 *Arroyo Grande Valley Sub-basin*

The Arroyo Grande Valley Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by DWR but outside of the adjudicated basin area. Water supply aquifers are within alluvial deposits in Arroyo Grande Valley, which is drained by Arroyo Grande Creek. The alluvial deposits reach approximately 100 feet thick (DWR 2002). Recharge to the sub-basin comes primarily from seepage from Arroyo Grande Creek (including Lopez Reservoir

releases) and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

Sub-basin groundwater users include small public water systems (residential, commercial, and County park), and agricultural and residential overlying users. There is no estimated safe yield or existing developed yield value reported for this sub-basin. Groundwater levels in the Arroyo Grande Creek alluvium downstream of Lopez Dam are controlled by releases from Lopez reservoir, and have been fairly stable since 1969 (DWR 2002).

Historical groundwater quality in the Arroyo Grande Valley Sub-basin, based on samples collected in the 1980s, shows a progressive deterioration in a downstream direction. The general mineral character of groundwater in the valley changes upstream of the Tar Springs Creek confluence. The downstream section overlies a zone of multiple faults that may contribute highly mineralized water, along with irrigation water returns. With one exception, TDS, sulfate, and chloride concentrations in groundwater samples from wells in the upstream section met drinking water standards and the water was classified as suitable for agricultural irrigation. In the downstream section, TDS from wells typically exceeded 1,500 mg/L (the short term maximum drinking water standard), with sulfate concentrations exceeding the 500 mg/L upper limit for drinking water. The water was also classified as marginal to unsuitable for agricultural irrigation (DWR 2002).

The primary constraints on water availability in the Arroyo Grande Valley Sub-basin are water quality issues, environmental demand, and water rights. Although shallow alluvial deposits are typically more susceptible to drought impacts, releases from Lopez Reservoir provide greater dry period recharge than would otherwise exist. Groundwater quality in the lower sub-basin is marginal to poor, and steelhead habitat is present in Arroyo Grande Creek. The legal framework for Lopez Reservoir releases, downstream monitoring, and surface water allocations could also limit groundwater availability.

4.2.2.2.6 *Nipomo Valley Sub-basin*

The Nipomo Valley Sub-basin is part of the Santa Maria Valley Groundwater Basin as defined by DWR but outside of the adjudicated basin area. Sub-basin water supply aquifers are limited to the older alluvium, which covers the floor of the valley up to approximately 90 feet thick, thinning to negligible thickness toward the eastern edges of the sub-basin. This older alluvium continues to supply some wells, although bedrock formations underlying the alluvium have, over time, become a more important source of groundwater supply (DWR 2002). The fractured rock reservoirs that lie beneath the alluvial deposits cover a much larger area than the sub-basin limits, although the aquifer zones, which are defined by fracture permeability, are typically associated with particular strata and may be structurally complex. Recharge to the sub-basin comes primarily from seepage from Nipomo Creek, from deep percolation of precipitation, and residential/agricultural return flows.

Sub-basin groundwater users include residential and agricultural overlying users. The Nipomo Community Services District (Nipomo CSD) operates wells within the boundaries of

the sub-basin, but these wells tap the deeper fractured rock reservoirs. There is no existing estimate for the perennial yield of this sub-basin.

Water quality is variable across the sub-basin, and the available data set does not distinguish between older alluvial wells and fractured rock wells, although most of the water represented is from the fractured rock reservoirs. Groundwater samples collected from 22 wells between 1962 and 2000 displayed the following characteristics: TDS concentrations ranged from 750 mg/L to 1,300 mg/L; sulfate concentrations between 200 and 340 mg/L; chloride concentrations between 64 and 130 mg/L; and nitrate concentrations from non-detect to 3.4 mg/L. Groundwater is classified as suitable to marginal under water quality guideline for irrigated agriculture (DWR 2002).

The primary constraints on water availability in the Nipomo Valley Sub-basin are physical limitations and water quality. The shallow alluvial deposits are typically more susceptible to drought impacts. The alluvial deposits also overlie and recharge fractured rock aquifers, and would experience declines in water levels and production during dry periods. Water availability in the fractures rock reservoirs can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge. Water quality results indicate that State maximum allowable concentrations of some constituents are exceeded at some wells.

4.2.2.2.7 *Northern Cities Management Area*

The Northern Cities Management Area (NCMA) is part of the Santa Maria Valley Groundwater Basin adjudicated area. Water supply aquifers are within alluvial deposits, the Paso Robles Formation, the Careaga Formation and the Pismo Formation. The alluvium is tapped by wells in the Arroyo Grande Plain Hydrologic Subarea, where it reaches a maximum thickness of 130 feet. The Paso Robles Formation ranges from approximately 150 to 500 feet thick across the management area. The Careaga Formation is up to 300 feet thick south of the Santa Maria River fault, and absent north of the fault. North of the fault, the Pismo Formation underlies the Paso Robles Formation, reaching thicknesses of close to 600 feet along the coast (DWR 2002; Todd, 2007). Recharge to the management area comes primarily from seepage from Arroyo Grande Creek (including releases from Lopez Reservoir), from deep percolation of precipitation (includes storm water infiltration basins), subsurface inflow from the Nipomo Mesa with underflow from Pismo Creek, Meadow Creek, Arroyo Grande Creek, and Los Berros Creek alluvium, and residential/agricultural return flows.

Basin groundwater users in the NCMA include City of Pismo Beach, City of Arroyo Grande, City of Grover Beach, Oceano Community Services District (Oceano CSD), small public water systems (including Halcyon Water System), Lucia Mar Unified School District, and residential and agricultural overlying users.

The safe yield of the DWR's Tri-Cities Mesa – Arroyo Grande Plain Hydrologic Subarea, reported as dependable yield, and was estimated between 4,000 AFY and 5,600 AFY prior to the formal establishment of the NCMA (DWR 2002). A 2007 Water Balance Study for the

management area estimated total average annual recharge at 8,535 AFY, and an average annual groundwater production of 5,569 AFY between 1986 and 2004 without detectable sea water intrusion, supporting the DWR's 5,600 AFY safe yield value estimate (Todd, 2007). However, in 2009, evidence of seawater intrusion was detected at monitoring wells in the Oceano area, even though pumping within the NCMA did not exceed the safe yield of 5,600 AFY (NCMA, 2011).

The 2002 Groundwater Management Agreement (the "gentlemen's agreement") between the Northern Cities (with Oceano CSD) allocates an assumed safe yield of 9,500 AFY. The safe yield included subdivisions for agricultural irrigation (5,300 AFY), subsurface flow to the ocean (200 AFY) and urban uses (4,000 AFY). It also provided that urban groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses, referred to as an agricultural conversion credit, or "ag credit." Accordingly, the Cities of Arroyo Grande and Grover Beach have increased their groundwater allocations through the conversion of agricultural uses to urban uses within their service areas. The 2010 Annual Report for the Northern Cities Management Area (NCMA) summarizes the groundwater allocations for the Northern Cities as follows:

Urban Area	Groundwater Allotment (from 2002 Groundwater Management Agreement), AFY	Ag Credit, AFY	Total, AFY
Arroyo Grande	1,202	112	1,314
Grover Beach	1,198	209	1,407
Pismo Beach	700	0	700
Oceano CSD	900	0	900
Total	**4,000**	**321**	**4,321**

The 9,500 AFY yield value was reportedly based on the 1979 DWR groundwater study for the Arroyo Grande area, although this value originated as the maximum estimated safe seasonal yield for the Arroyo Grande Subunit in the 1958 DWR report. The 2009 Annual Report for the NCMA acknowledges the historical 9,500 AFY yield value, but indicates that the allocation for basin outflow of 200 AFY is unreasonably low, and that a regional outflow on the order of 3,000 AFY is a reasonable approximation of subsurface outflow needed to prevent seawater intrusion (Todd, 2010).

Groundwater in the Tri-Cities Mesa portion of the NCMA (north of the Arroyo Grande Plain) has a median TDS value of 650 mg/L, based on data from 1992-2000. Six of 35 wells tested exceeded the State drinking water standard for nitrate, which has been a concern in the area. In the Arroyo Grande Plain, historical data between 1950 and 1987 indicated that approximately three-quarters of the wells sampled had TDS values between 500 to 1,500 mg/L, with half the wells reporting sulfate concentrations greater than 250 mg/L (DWR 2002).

Water availability in the NCMA is primarily constrained by water quality issues and water rights. Basin sediments in the management area extend offshore along several miles of coastline, where sea water intrusion is the greatest potential threat to the supply. Low

coastal groundwater levels indicated a potential for seawater intrusion that was locally manifested in sentry wells 32S/13E N02 and N03 in 2009 after 3 dry years, with levels and water quality improving after an average rainfall year in 2010. The major purveyors have agreed to share the water resources through a cooperative agreement that also sets aside water for agricultural use and for basin outflow (Todd, 2007).

4.2.2.2.8 *Nipomo Mesa Management Area*

The Nipomo Mesa Management Area (NMMA) is part of the Santa Maria Valley Groundwater Basin adjudicated area. Water supply aquifers are within dune sands, the Paso Robles Formation, and the Careaga Formation (NMMA, 2008). DWR basin descriptions also include the Pismo Formation (DWR 2002).

The most productive and developed aquifers are in the alluvium and Paso Robles Formation. Dune sands forming the Nipomo Mesa reach a maximum thickness of close to 300 feet, although most of the sand is unsaturated. The Paso Robles Formation is the thickest and most extensive aquifer in the basin. The Paso Robles Formation in this area is up to 600 feet thick south of the Oceano fault and approximately 200 feet thick north of the fault. Further north beneath the Nipomo Mesa, the Paso Robles Formation is about 100 to 150 feet thick north of the Santa Maria River fault.

Careaga Formation sands are approximately 200-300 feet thick beneath the Nipomo Mesa and are completely missing north of the Santa Maria River fault. Pismo Formation sands are interpreted to underlie the Paso Robles Formation north of the Santa Maria River fault (DWR 2002).

The NMMA has defined a Shallow Aquifer and a Deep Aquifer. The Shallow Aquifer within the NMMA is considered to be an unconfined aquifer. The Deep Aquifer is considered to be confined (NMMA Technical Group, 2009). All production from wells used for public drinking water and industrial water is likely pumped from the Deep Aquifer (primarily the Paso Robles Formation (NMMA 2009 Annual Report). Recharge to the management area comes primarily from deep percolation of precipitation, subsurface inflow from the Santa Maria Valley, and residential/agricultural return flows.

Basin groundwater users in the Nipomo Mesa Management Area include Golden State Water Company, Rural Water Company, Woodlands Mutual Water Company (MWC), ConocoPhillips, Nipomo Community Services District (Nipomo CSD), Lucia Mar Unified School District, small public water systems (serving residential, industrial and nursery/greenhouse operations), and commercial, agricultural and residential overlying users.

DWR (2002) estimated the dependable yield (DWR 2002. Page ES21) for their study area to be between 4,800 AFY and 6,000 AFY, which was prior to the formal establishment of the NMMA. The DWR study area was approximately equivalent to the boundary of the NMMA. The 2009 Annual Report for the NMMA does not estimate safe yield, nor does it estimate the portion of rainfall that percolates downward recharging the shallow aquifer in a

specific place, or the deep aquifer because of the uncertainty in the geometry of confined and unconfined aquifers.

Water quality varies in general mineral character across the Nipomo Mesa. The median TDS in 35 wells sampled between 1990 and 2000 was approximately 500 mg/L. Nitrate has been detected in excess of the drinking water standard in relatively few wells (DWR 2002; NMMA Technical Group, 2009).

According to the database maintained by the California Department of Public Health (CDPH), production wells used for public drinking and industrial use in the NMMA met drinking water quality standards in 2008. One of the ConocoPhillips production wells had a reported value of 1,000 mg/L TDS, the highest reported to the CDPH within the NMMA; the well is used for industrial processing (NMMA Technical Group, 2009).

The primary constraints on water availability in the NMMA would be physical limitations to the east, water quality on the west, and water rights. The base of permeable sediments rises toward the eastern boundary of the area, reducing groundwater in storage and increasing the susceptibility of wells to drought impacts and associated water level declines. To the west, where deeper sediments allow for greater storage fluctuations, sea water intrusion would limit the available fresh water.

The Nipomo Mesa Water Conservation Area is currently in a certified Level of Severity III for water supply (resource capacity has been met or exceeded), as defined by San Luis Obispo County. The County's Level of Severity III led to the preparation of a water conservation ordinance (San Luis Obispo County Code, Title 8 Chapter 8.92, effective September 25, 2008).

The NMMA Technical Group has established a groundwater monitoring plan that uses coastal and inland key wells to assess the condition of the basin. The 2008 Annual Report indicates that a potentially severe water shortage condition exists. This condition calls for voluntary actions under a response plan, with recommendations to draft a Well Management Plan and a conceptual plan to identify specific actions to be taken (NMMA Technical Group, 2009).

4.2.2.2.9 *Santa Maria Valley Management Area*

The Santa Maria Valley Management Area (SMVMA) is part of the Santa Maria Valley groundwater basin adjudicated area. Water supply aquifers are within alluvial deposits, the Paso Robles Formation, and the Careaga Formation. The alluvial deposits are up to 230 feet thick beneath the Santa Maria River. The Paso Robles Formation reaches up to 700 feet thick at the southern County border along the Santa Maria River. The Careaga Formation reaches a thickness of close to 700 feet beneath the Santa Maria Plain (DWR 2002). Recharge to the management area comes primarily from seepage of surface flows in the Santa Maria River (including releases from Twitchell reservoir), deep percolation of precipitation, and residential/agricultural return flows.

Basin groundwater users in the San Luis Obispo County portion of the SMVMA consist primarily of agricultural overlying users, with some residential overlying users and a small public water system.

The SMVMA, most of which is in Santa Barbara County, provided 124,000 AFY of average annual production to wells over a perennial yield study period without sea water intrusion or a decline in groundwater levels and storage (Luhdorff & Scalmanini, 2000). The 2008 Annual Report for the Management Area estimated 125,100 acre-feet of groundwater production in the basin for 2008, with no indications of severe water shortage (Luhdorff & Scalmanini, 2009). Safe Yield in the San Luis Obispo County portion of the Santa Maria Valley, reported as dependable yield, was estimated between 11,100 AFY and 13,000 AFY prior to the formal establishment of the SMVMA (DWR 2002).

Sulfate and TDS are the primary constituents of concern within the San Luis Obispo County portion of the SMVMA. TDS concentrations collected in four area wells between 1992 and 1998 ranged from approximately 750 mg/L to 1,300 mg/L, with a median of 1,200 mg/L, which exceeds the State drinking water standard upper limit of 1,000 mg/L. All the sulfate concentrations exceeded the recommended drinking water standard of 250 mg/L and some exceeded the upper limit of 500 mg/L. TDS was up to 800 mg/L greater in the alluvial aquifer, when compared to the underlying Paso Robles Formation aquifers. Nitrates are also a concern in several areas of the valley, although the majority of groundwater sample results in the San Luis Obispo County portion of the valley are below the MCL (DWR 2002).

The primary constraint on water availability in the San Luis Obispo County portion of the SMVMA would be water quality and water rights. A natural outflow of fresh water must be maintained, both in the deeper aquifer zones where sea water pressures are greatest, and in the shallow alluvial zones where irrigation returns are concentrated. The operation of Twitchell reservoir and the Superior Court Stipulated Judgment and Judgment after Trial affect groundwater availability.

4.2.2.3 Huasna Valley WPA 8

Huasna Valley Groundwater Basin is the only groundwater basin in WPA 8.

4.2.2.3.1 *Huasna Valley Groundwater Basin*

The Huasna Valley Groundwater Basin is part of the South Coast Sub-Region (Figure 4.8) and encompasses approximately 4,700 acres (7.3 square miles). The basin underlies valleys drained by two branches of Huasna Creek, which flow to Twitchell reservoir. Huasna Valley has been designated as Basin 3-45 and is entirely within unincorporated San Luis Obispo County (DWR 2003). Recharge to the basin comes primarily from seepage from Huasna River and tributaries, deep percolation of precipitation, residential/agricultural return flows, and from Twitchell reservoir seepage when the reservoir fills the lower valley. The basin aquifer consists of alluvial deposits drained by Huasna Creek and Huasna River (DWR 2003).

Basin water users are residential and agricultural overlying users. There is no existing estimate of basin safe yield or hydrologic budget items. No historical water quality data for the alluvial basin has been published in public documents or is available through the STORET Legacy Database.

Constraints on water availability in the Huasna Valley Groundwater Basin include physical limitations. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers. Water availability in the sandstone and fractured reservoirs can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

There is limited hydrogeologic information published for this basin. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

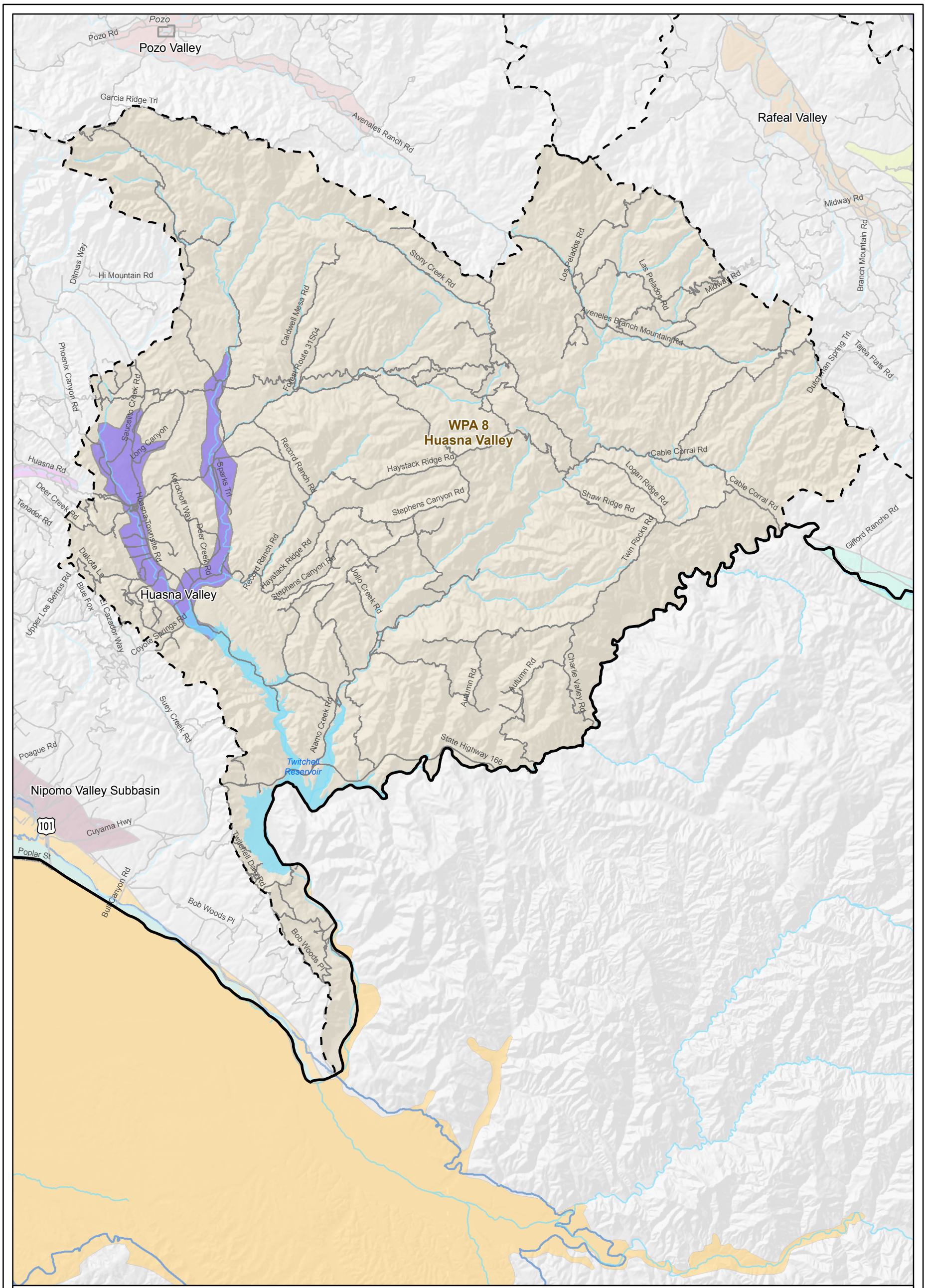

Figure 4.8
San Luis Obispo County
Water Planning Area 8
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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4.2.2.4 Cuyama Valley WPA 9

The Cuyama Valley Groundwater Basin is the only groundwater basin in WPA 9.

4.2.2.4.1 *Cuyama Valley Groundwater Basin*

The Cuyama Valley Groundwater Basin is part of the South Coast Sub-Region (Figure 4.9) and encompasses approximately 147,200 acres (230 square miles), of which approximately 32,600 acres (51 square miles) are within San Luis Obispo County. The basin underlies the valley drained by the Cuyama River and is bounded on the north by the Caliente range and on the Southwest by the Sierra Madre Mountains. Cuyama Valley has been designated as Basin 3-13 and includes portions within unincorporated San Luis Obispo County, Santa Barbara County, Kern County, and Ventura County (DWR 2003). Recharge to the basin comes primarily from seepage from Cuyama River, deep percolation of precipitation, and residential/agricultural return flows.

The aquifer consists of alluvial deposits and older terrestrial deposits. The thickness of the alluvium is inferred to be from 150 to 250 feet (DWR 2003 after Upson and Worts 1951). Basin groundwater users in the San Luis Obispo portion of the basin include oil field operators and residential/agricultural overlying users. Perennial yield for the entire basin has been estimated between 9,000 and 13,000 AFY (Upson and Worts, 1951). The long-term potential recharge of the basin was estimated between 12,000-16,000 AFY, with an average of 13,000 AFY year (Singer and Swarzenski, 1970). A safe yield of 10,667 AFY gross (8,000 AFY net consumptive use) was estimated in 1992 (Baca et al., 1992). The most recent compilation of hydrologic budget information presents a groundwater budget in which total groundwater pumpage is 40,592 AFY, resulting in a deficit of 30,532 AFY (Anderson et al., 2009). This hydrologic budget compilation indicates a perennial yield on the order of 10,000 AFY, which is within the range of prior work. There is no separate yield estimate for the San Luis Obispo County portion of the basin.

Water quality within this basin generally deteriorates towards the west end of the basin, where the sediments thin. There is also poor quality water towards the northeast end of the basin at extreme depth. Although groundwater in the Cuyama Valley Groundwater Basin is only of fair chemical quality, it has been used successfully to irrigate most crops. Presumably this has been possible because the sodium content of most of the water is relatively low and the soils are quite permeable (County of Santa Barbara 2005 Groundwater Report; Upson and Worts, 1951; Singer and Swarzenski, 1970).

Carrizo Plain
Elkhorn Rd
Calhoun Rd
Soda Lake Rd
Elkhorn Rd
Soda Lake Rd
County Road 285
Simmler Soda Lake Rd
Dutchman Spring Trl
Taylor Well Rd
Gillam Spring Trl
Gillam Spring Trl
Quinineas Ranch Rd
Cable Canyon Rd
Gifford Rancho Rd
166
State Highway 166
WPA 9
Cuyama Valley
State Highway 166
Cuyama Valley Basin
Airport Ln
State Highway 33
Foothill Rd

Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 9
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1.5 3 Miles

Figure 4.9
San Luis Obispo County
Water Planning Area 9
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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Analyses of water from three public supply wells show an average TDS content of 858 mg/L and a range from 755 to 1,000 mg/L. USGS analyses show TDS content as high as 1,750 mg/L. Because of constant cycling and evaporation of irrigation water in the basin, water quality has been deteriorating (DWR 2003; SBCWA 1996; SBCWA 2001).

Groundwater near the Caliente Range has high salinity. Nitrate content reached 400 mg/L in some shallow wells (DWR 2003; County of Santa Barbara Planning and Development Department, 1994).

Constraints on water availability in the Cuyama Valley Groundwater Basin are primarily physical limitations. The maximum potential yield that can be achieved through lowering water levels to increase natural stream flow seepage and to reduce subsurface outflow have been reached (production has exceeded this value). The County of San Luis Obispo Planning Department has determined that the basin is currently at a Level III severity rating (resource capacity has been met or exceeded) due to historical groundwater level declines and resulting groundwater storage losses.

In 1980, the Cuyama Valley Groundwater Basin was identified by the California Department of Water Resources as one of the eleven basins in “critical condition of overdraft. Although the groundwater basin is experiencing serious hydrologic impacts due to unsustainable groundwater pumping practices, a groundwater management plan for the basin does not exist. Since this basin lies within four counties, future efforts for a county groundwater management plan will likely be difficult (Andersen et al., 2009).

4.2.3 Inland Sub-Region

The Inland sub-region is comprised of seven WPAs, including Carrizo Plain (WPA 10), Rafael/Big Spring (WPA 11), Santa Margarita (WPA 12), Atascadero/Templeton (WPA 13), Salinas/Estrella (WPA 14), Cholame (WPA 15) and Nacimiento (WPA 16) summarized in Table 4.3. A brief description of the basins within each WPA is provided below, with details on groundwater supply aquifers, groundwater users, basin yield, water quality, and water availability.

Table 4.3 Inland Sub-Region Groundwater Basins				
WPA No.	**WPA Name**	**Groundwater Basin Name**	**Sub-basin/ Management Area**	**Estimated Safe Basin Yield (AFY)**
10	Carizzo Plain	Carizzo Plain		8,000-11,000
11	Rafael/Big Spring	Rafael Valley		No estimate available
		Big Spring Area		No estimate available
12	Santa Margarita	Santa Margarita Valley		No basin wide estimate available(1)
		Rinconada Valley		No estimate available
		Pozo Valley		1,000(2)
13	Atascadero/ Templeton	Paso Robles	Atascadero	16,400
14	Salinas/ Estrella	Paso Robles		97,700(3)
15	Cholame	Cholame Valley		No estimate available
16	Nacimiento	(none)		No estimate available

Notes:
1. The average annual yield of the basin in the vicinity of the proposed Santa Margarita Ranch development may be in the range of 400 to 600 AFY.
2. 1958 Department of Water Resources estimate. There has been no subsequent basin study to confirm or update this estimate.
3. Includes 16,400 AFY perennial yield from the Atascadero Groundwater Sub-basin.

4.2.3.1 Carrizo Plain WPA 10

Carrizo Plain is the only groundwater basin in WPA 10.

4.2.3.1.1 *Carrizo Plain Groundwater Basin*

The Carrizo Plain Groundwater Basin is located in WPA 10 (Figure 4.10) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-19 (DWR 2003). The basin is 173,000 acres (270 square miles) in size and is situated between the Temblor

Range to the east and the Caliente Range and San Juan Hills to the west. The basin has internal drainage to Soda Lake.

Groundwater in the basin is found in alluvium, the Paso Robles Formation, and the Morales Formation (DWR 2003). The upper alluvium and Paso Robles Formation deposits are more than 3,000 feet thick in the eastern portion of the basin and decrease in thickness to the west. Recharge to the basin is predominantly from percolation of stream flow and infiltration of precipitation.

There is one small public water system serving the local school (part of the Atascadero Unified School District). All other pumping in the basin is for agricultural and residential purposes by overlying users. There are two proposed solar farms that will located within this WPA (Topaz Farms 550-MW; SunPower 250-MW).

The safe yield of the basin is estimated to be 600 AFY (DWR 1958). The Kemnitzer safe yield was estimated at 59,000 AFY (based on 1967 inflow/outflow analysis). Taking into consideration the methodologies used in previous studies, current and historical groundwater levels, and water quality, the solar project EIRs' water analyses conclude that a more reasonable safe yield on which to base planning decisions is between 8,000 to 11,000 AFY.

Groundwater samples from 79 wells collected from 1957 to 1985 show total dissolved solids concentration ranging from 161 to 94,750 mg/L (DWR 2003). Groundwater in the lower alluvium and upper Paso Robles Formation that both underlie Soda Lake are highly mineralized. Groundwater deeper in the confined Paso Robles Formation is of higher quality. Groundwater in the Morales Formation is likely brackish.

Constraints on water availability in the basin include physical limitations and water quality issues. The low safe yield estimate of this basin relative to its large size, and the high TDS concentrations in areas (e.g., Soda Lake) suggest that water availability in the region is limited. Other than water quality issues associated with the internal drainage structure of the basin, other constraints are not well defined.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Bitterwater Rd
Soda Lake Rd
Soda Lake Rd
Simmler Rd
Bitterwater Rd
Topaz Solar Farm Project
Tracy Ln
Carrisa Hwy
58
Cloverdale Trl
Branch Mountain Rd
Denair Rd
Concord Trl
Carpenteria Trl
Belmont Trl
Greybriar Trl
Gaviota Trl
Cornell Rd
California Valley
Caliente Trl
Seven Mile Rd
Bend Rd
Big Bend Trl
Arrow Bear Trl
Asilomar Trl
Biola Trl
Grace Trl
Dorrington Trl
Rafeal Valley
Big Spring Area
Midway Rd
Midway Rd
Taylor Well Rd
Dutchman Spring Trl
Gillam Spring Trl
Cable Corral Rd
Carrisa Hwy
California Valley Solar Ranch Project
Gypsum Trl
Arriba Trl
Big Basin Trl
Arrowannee Trl
San Diego Creek Rd
Elkhorn Rd
Soda Lake
WPA 10
Carrizo Plain
Carrizo Plain
Hurricane Rd
Calhoun Rd
Soda Lake Rd
Elkhorn Rd
Soda Lake Rd
Simmler Soda Lake Rd
166
State Highway 166
Cuyama Valley Basin
State Highway 166
State Highway 33
Foothill Rd

Legend

Water Facilities

- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme

- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Solar Projects

- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 10
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:

Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 2.5 5 Miles

Figure 4.10
San Luis Obispo County
Water Planning Area 10
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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4.2.3.2 Rafael Valley/Big Spring WPA 11

WPA 11 includes the Rafael Valley and Big Spring Area Groundwater Basins.

4.2.3.2.1 *Rafael Valley Groundwater Basin*

The Rafael Valley Groundwater Basin is located in the Inland Sub-Region (Figure 4.11) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-46 (DWR 2003). The basin underlies the Rafael Valley and is 2,990 acres (4.7 square miles) in size. The Rafael Valley is drained by the Rafael and San Juan creeks.

According to Bulletin 118, the main water-bearing unit in the basin is an alluvial aquifer (DWR 2003). There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality for this basin.

Constraints on water availability in the Rafael Valley Groundwater Basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rafael Valley, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

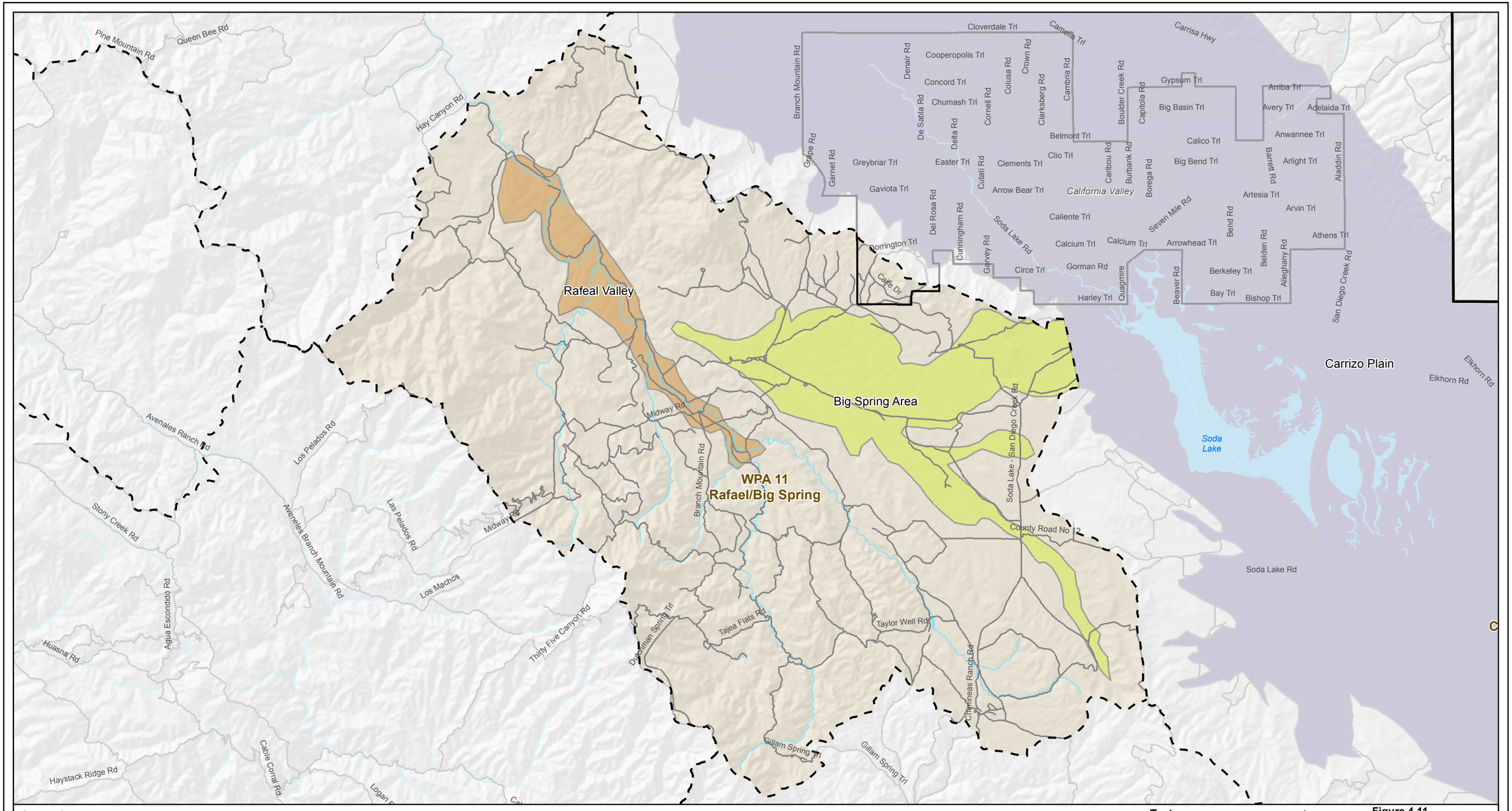
Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

4.2.3.2.2 *Big Spring Area Groundwater Basin*

The Big Spring Area Groundwater Basin is located in the Inland Sub-Region (Figure 4.11) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-47 (DWR 2003). The basin is 7,320 acres (11.4 square miles) in size and underlies a valley that is drained by a tributary to San Juan Creek. According to Bulletin 118, the main water-bearing unit in the basin is Quaternary age alluvium (DWR 2003). No additional information is available describing the basin hydrogeology.

There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality.

Constraints on water availability in this basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Big Spring area, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge.



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Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 11
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1 2 Miles

Figure 4.11
San Luis Obispo County
Water Planning Area 11
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

4.2.3.3 Santa Margarita WPA 12

WPA 12 includes the Santa Margarita Valley, Rinconada Valley, and Pozo Valley Groundwater Basins.

4.2.3.3.1 *Santa Margarita Valley Groundwater Basin*

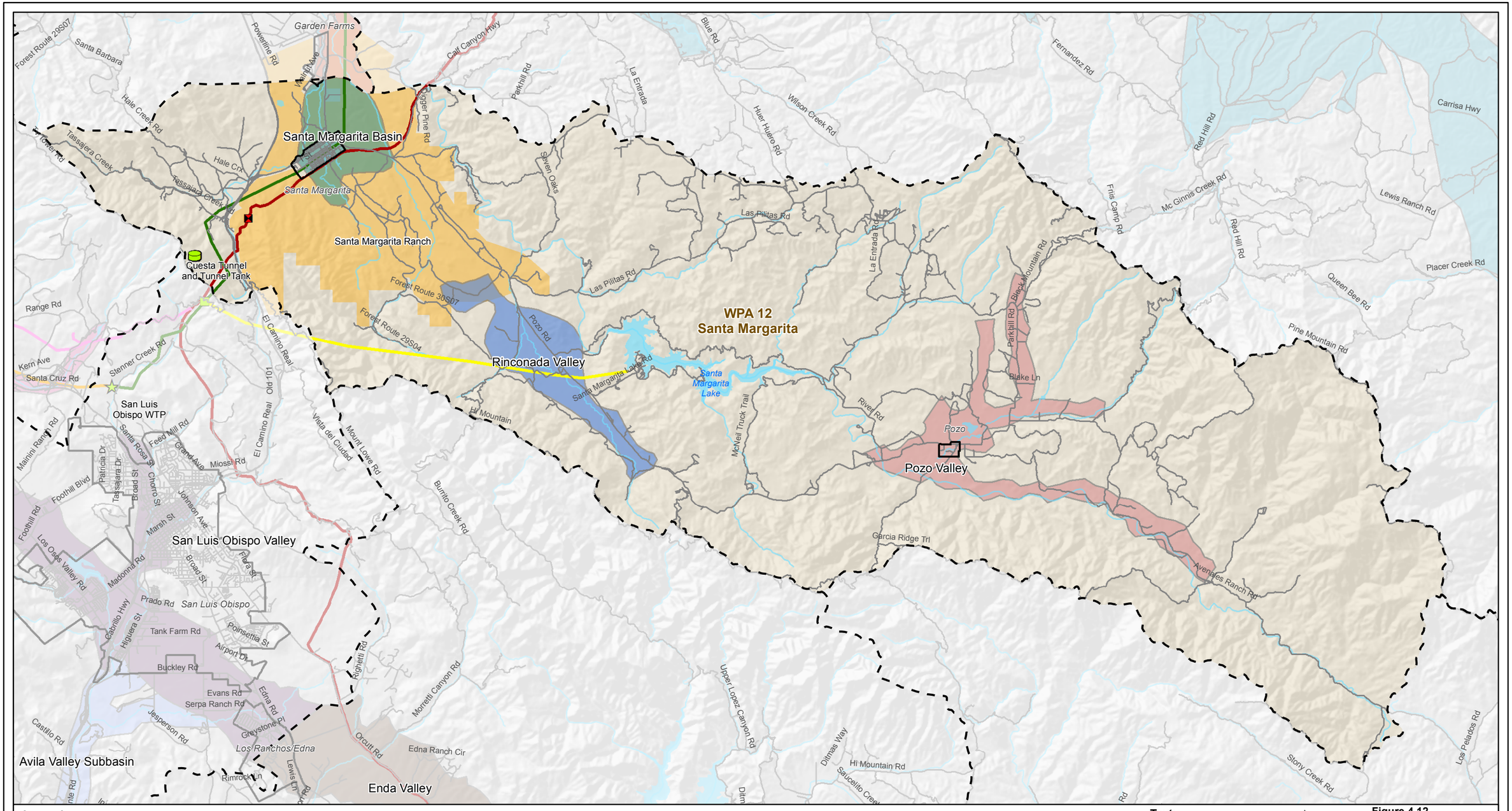
The Santa Margarita Valley Groundwater Basin is located in the Inland Sub-Region (Figure 4.12). The basin area includes the unincorporated town of Santa Margarita and surrounding rural residences and agricultural fields. The total drainage area associated with the basin consists of four watersheds that collectively drain in the northerly direction into the Salinas River. The major creeks associated with the four watersheds are the Santa Margarita Creek, the Yerba Buena Creek, Trout Creek, and Rinconada Creek.

The basin primarily contains four geologic units and supply aquifers: 1) the Younger Alluvium, 2) Older Alluvium, 3) Paso Robles Formation, and 4) Santa Margarita Formation. The shallow Younger Alluvium and Older Alluvium deposits occur along the active stream channels and along the eastern basin boundary. In particular, alluvial deposits associated with the Santa Margarita Creek extend from the ground surface to a depth of about 50 feet. Relative to the deeper Paso Robles and Santa Margarita Formations, the Younger and Older Alluvium have high hydraulic conductivities.

The deeper Paso Robles Formation ranges in thickness up to 300 to 400 feet. The Paso Robles Formation is found at depths in the range of 400 to 500 feet below ground surface. The Santa Margarita Formation overlies the Monterey Formation, which likely defines the effective base of fresh water in the basin area. The Santa Margarita Formation thickness likely ranges up to 1,000 feet. The Paso Robles and Santa Margarita Formations tapped by wells for water supply purposes are typically located in the Yerba Buena Creek area.

Water users in the Santa Margarita area include the unincorporated town of Santa Margarita and overlying users. Water service for the town of Santa Margarita is provided by County Service Area Number 23 (CSA 23). CSA 23 is owned/governed by the County of San Luis Obispo and is operated/managed by the Department of Public Works. Overlying users include rural residences and agricultural users.

No comprehensive studies to determine the perennial yield of the Santa Margarita Valley Groundwater Basin are known to exist. Based on an evaluation of available data used for the Santa Margarita Ranch (Ranch) Environmental Impact Analysis study, however, Hopkins (2006) indicated that the average annual yield of the basin in the vicinity of the proposed Ranch development may be in the range of 400 to 600 AFY. Although the Santa Margarita Creek alluvial aquifer serves as the primary source of water for the town of Santa Margarita, there is no safe yield estimate for this aquifer.



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Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Santa Margarita Ranch
- Water Planning Area 12
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1 2 Miles

Figure 4.12
San Luis Obispo County
Water Planning Area 12
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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The TDS concentration in wells constructed in the alluvial deposits and in the Santa Margarita Formation were reported to be 400 mg/L and 490 mg/L, respectively (Todd, 2004). Methylene blue active substances (MBAS) is an indicator of soaps and detergents, and is used to detect impacts of onsite wastewater disposal systems (e.g., septic tanks) on groundwater quality. MBAS was detected in two alluvial aquifer wells but not in any Santa Margarita Formation wells (Todd, 2004). Based on a review of available water quality data by Todd (2004), all shallow and deep wells sampled for nitrate have measured concentrations below the maximum contaminant level (MCL) of 45 mg/L. Total coliform, fecal coliform, and Escherichia coli data were reviewed by Todd (2004) and found to be suggestive, although not conclusive, of small impacts on both shallow and deep aquifer wells from local wastewater disposal systems.

The primary constraint on water availability in the basin concerns physical limitations. Although the alluvial aquifer is considered to be highly productive, it is shallow in vertical extent (i.e., 50 feet thick) and therefore highly susceptible to seasonal fluctuations in groundwater levels of about 15 to 20 feet. During dry water years or extended droughts, well yields may be significantly reduced due to low groundwater levels (Todd, 2004). Recharge in the shallow alluvial deposits for a particular year is dependent on rainfall, creek stream flows, and precipitation runoff generated in the four watersheds.

Wells developed in the Santa Margarita Formation generally do not have sufficient yields to reliably replace the wells in the alluvial aquifer. Hydrographs of deep wells indicate that groundwater levels have been trending downward there at least over the last decade (Hopkins, 2006).

4.2.3.3.2 *Rinconada Valley Groundwater Basin*

The Rinconada Valley Groundwater Basin is located in the Inland Sub-Region (Figure 4.12) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-43 (DWR 2003). The basin underlies the Rinconada Valley and is 2,580 acres (4 square miles) in size. The valley is drained by Rinconada Creek, which is tributary to the Salinas River.

There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield or water quality in the basin. There is very limited information available for this basin. If the District requires more current or detailed information for this basin, new studies would be necessary.

Constraints on water availability in the Rinconada Valley basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rinconada Valley, the alluvial aquifer also overlies and recharges the underlying rock formations. Water availability in the consolidated rock formations is generally limited and highly variable,

depending on the local structure, available storage capacity, and access to source of recharge.

4.2.3.3.3 *Pozo Valley Groundwater Basin*

The Pozo Valley Groundwater Basin is located in the Inland Sub-Region (Figure 4.12) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-44 (DWR 2003). The basin is 6,840 acres (10.7 square miles) in size and is bounded on all sides by low permeability rocks. The basin is drained by Pozo Creek and the Salinas River, both of which flow into Santa Margarita Lake.

According to Bulletin 118, alluvium is the main water-bearing unit in the basin (DWR 2003). The alluvium is up to 30 feet thick. Basin recharge occurs as percolation of stream flow, percolation of precipitation, and irrigation return flows.

There are some small public water systems in the basin. All other pumping is for residential and agricultural purposes by overlying users. The safe yield in the basin has been reported to be 1,000 AFY (DWR 1958). According to Bulletin 118, groundwater samples from 5 wells in the basin taken from 1951 to 1988 indicate TDS concentrations ranging from 287 to 676 mg/L (DWR 2003).

Constraints on water availability in this basin are physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Pozo Valley, the alluvial aquifer also overlies and recharges the underlying rock formations. Water availability in the consolidated rock reservoirs is generally limited and highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

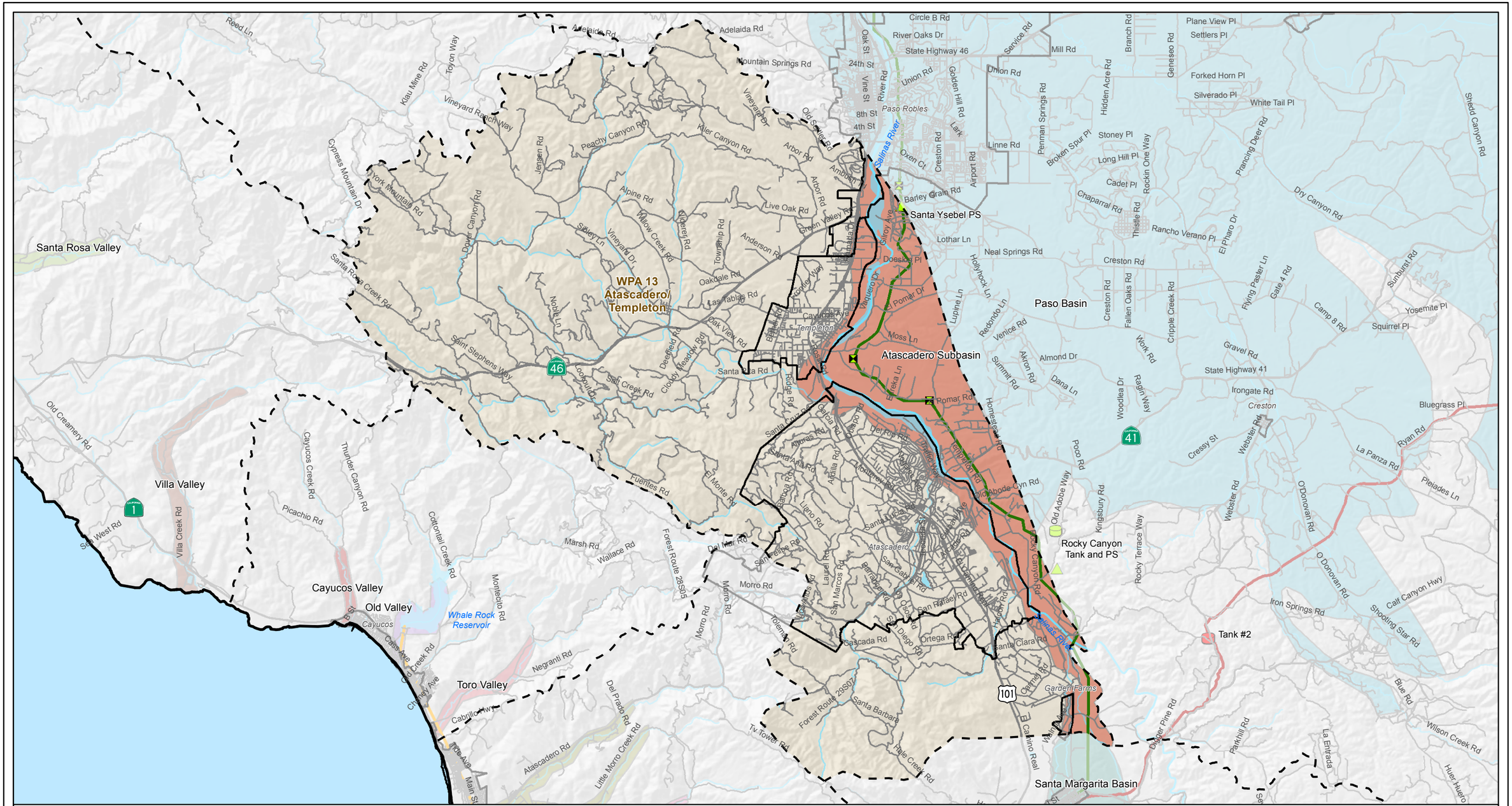
Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary.

4.2.3.4 Atascadero/Templeton WPA 13

WPA 13 includes the Atascadero Sub-basin of the Paso Robles Groundwater Basin (see WPA 14 for Paso Robles Groundwater Basin description). WPA 13 also includes consolidated rock aquifers that are not a part of, or described by, the Paso Robles Groundwater Basin. No information on the yield and water quality of these aquifer formations is available.

4.2.3.4.1 *Atascadero Groundwater Sub-basin*

The Atascadero Groundwater Sub-basin is located in the Inland Sub-Region (Figure 4.13) and is a sub-basin within the Paso Robles Groundwater Basin. The northern boundary of the sub-basin is approximately the southern end of the City of Paso Robles and the southern sub-basin boundary is located just south of the community of Garden Farms.



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Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline

- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 13
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1.5 3 Miles

Figure 4.13
San Luis Obispo County
Water Planning Area 13
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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The eastern boundary of the sub-basin is the Rinconada fault. Because the fault displaces the Paso Robles Formation, the hydraulic connection between the aquifer across the Rinconada fault is sufficiently restricted to warrant the classification of this area as a distinct sub-basin. Therefore, the Atascadero Groundwater Sub-basin of the Paso Robles Groundwater Basin is defined as that portion of the basin west of the Rinconada fault.

The Atascadero Groundwater Sub-basin includes the City of Atascadero and the communities of Templeton and Garden Farms. The Salinas River is the major hydrologic feature in the sub-basin. Outflow (primarily surface flow and Salinas River underflow) occurs in the northern direction from the sub-basin into the Estrella subarea of the Paso Robles Groundwater Basin.

Pumping test data from wells in the sub-basin suggest the presence of three aquifer groups with distinctly different hydraulic characteristics: 1) Alluvium along the floodplain of the Salinas River; 2) Paso Robles Formation deposits directly underlying the Salinas River alluvium; and 3) Paso Robles Formation deposits along the east side of the sub-basin that are not directly connected to the younger alluvium.

The Salinas River alluvium is an unconfined aquifer with a high hydraulic conductivity. The thickness of the alluvium ranges widely, with an estimated maximum thickness of 100 feet. Shallow wells up to 100 feet deep are located in the immediate vicinity of the Salinas River along its entire reach, typically tapping the younger alluvium and/or shallow Paso Robles Formation aquifer zones. Approximately half of the total pumping in the sub-basin is from these shallow, alluvial wells.

In the City of Atascadero area, the Paso Robles Formation underlies the younger Salinas River alluvium. Wells in the Paso Robles Formation in hydraulic communication with the overlying river alluvium tend to have higher hydraulic conductivity values when compared to wells that penetrate the portions of the Paso Robles Formation not in contact with the alluvium.

Paso Robles Formation deposits east of the Salinas River comprise the largest portion of the sub-basin. The deepest part of the formation is the area between Templeton and the Rinconada fault. In general, deep wells reach several hundred feet deep and tap the Paso Robles Formation.

The main source of recharge in the alluvium is the Salinas River. Recharge to the Paso Robles Formation occurs from the overlying Salinas River alluvium as well as from overlying channel deposits of the Santa Margarita, Atascadero, Graves, and Paso Robles creeks.

Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major water purveyors are the Atascadero Mutual Water Company (Atascadero MWC), Templeton Community Services District (Templeton CSD), and Garden Farms Mutual Water Company (Garden Farms MWC).

The perennial yield of the sub-basin was estimated to be 16,400 AFY (Fugro, 2002). Evaluation of water quality in the sub-basin is based on historical data from 1970 to 1997 collected and reviewed by Fugro (2002). TDS concentrations measured in wells along the Salinas River alluvium range from 317 to 857 mg/L. TDS concentrations measured in wells in the Paso Robles Formation range from 389 to 975 mg/L (Fugro, 2002). Water quality data from 11 wells and one spring in the sub-basin showed that no concentrations of contaminants exceed their respective MCL values (Fugro, 2002). The 2008 Water Quality Report for both Templeton CSD and Atascadero MWC found that none of the tested regulated and secondary substances in water samples exceeded their MCL values.

Primary constraints on water availability in the sub-basin include water rights and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Water Resources Control Board (State Board) and no plans exist to increase these demands beyond the current allocations. Full appropriation implies that no additional rights to the Salinas River flows are being issued by the State Board at this time nor is any additional pumping for existing rights being granted. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation.

In terms of physical limitations, Todd (2009) estimated the gross groundwater pumping in the sub-basin during 2006 to be 15,545 AF, which is 95 percent of the sub-basin perennial yield of 16,400 AFY. Ongoing studies may revise the estimated outflow from the sub-basin. According to Fugro (2010), whereas total groundwater in storage in the main part of the Paso Robles Groundwater Basin is predominantly in the Paso Robles Formation, the Salinas River alluvium in the Atascadero Groundwater Sub-basin accounts for a significant percentage of the total groundwater storage in the sub-basin. Pumping from the alluvium should be accounted for separately from pumping from the Paso Robles Formation. Furthermore, Fugro opined that pumping in excess of the perennial yield in the sub-basin may not necessarily be reflected by decreasing groundwater levels in the Paso Robles Formation since significant pumping occurs in the alluvium.

4.2.3.5 Salinas/Estrella WPA 14

WPA 14 includes the Paso Robles Groundwater Basin (except for the Atascadero Sub-basin portion, which was discussed in WPA 13).

4.2.3.5.1 *Paso Robles Groundwater Basin*

The Paso Robles Groundwater Basin is part of the Inland Sub-Region (Figure 4.14). According to California's Groundwater Bulletin 118, the entire Paso Robles Groundwater Basin is located within the greater Salinas Valley Groundwater Basin and is identified as Groundwater Basin Number 3-4.06. The Paso Robles Groundwater Basin is located

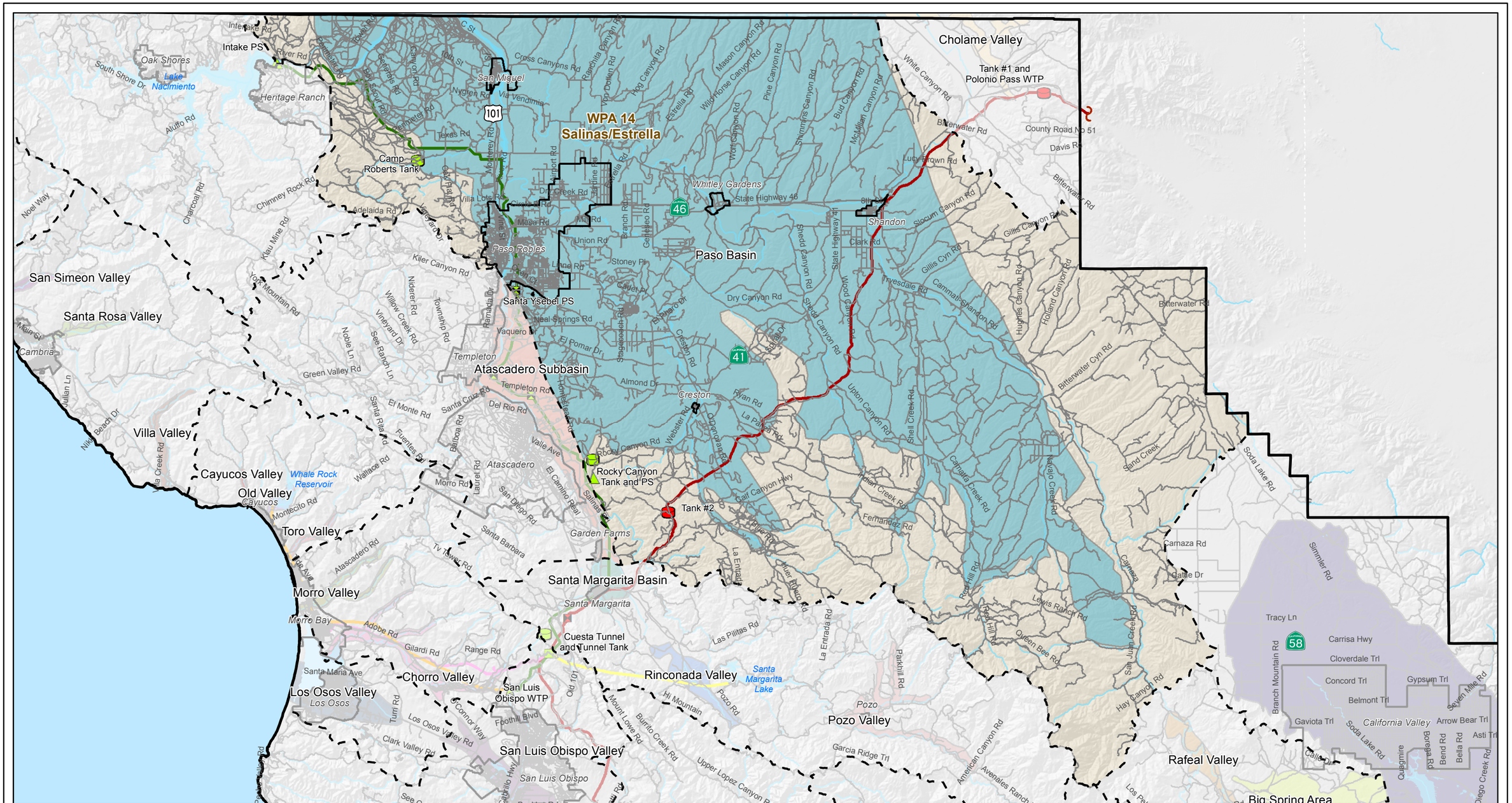

Figure 4.14
San Luis Obispo County
Water Planning Area 14
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

in both Monterey and San Luis Obispo counties and is 505,000 acres (790 square miles) in size. Roughly one-third of the areal extent of the Paso Robles Groundwater Basin extends into Monterey County. The basin ranges from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon.

In general, the Salinas River, Estrella Creek, San Juan Creek, Huer Huero Creek, and numerous other smaller channels that are tributary to these major rivers and creeks drain the basin. Groundwater in the basin is found in alluvium and in the Paso Robles Formation. In general, the alluvium is mostly unconfined, ranges in depth from 30 to 130 feet below ground surface, and is characterized by relatively high permeability. Most of the alluvium associated with the various rivers and creeks in the basin provide limited supplies of extractable groundwater. The Salinas River, however, is a significant source of groundwater to several municipalities located adjacent to and along its reach as well as a number of overlying users with appropriative or riparian rights. Groundwater in the alluvium is a principal source of recharge to the underlying Paso Robles Formation. The Paso Robles Formation is the most significant source of groundwater in the basin. Recharge to the basin derives from stream percolation of the alluvium underflow, infiltration of precipitation, and deep percolation of applied irrigation and wastewater discharge.

Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major municipal water purveyors include the Atascadero MWC, City of Paso Robles, Templeton CSD, CSA 16-1 (Shandon), and San Miguel Community Services District (San Miguel CSD). The San Luis Obispo County Environmental Health Department also identified 36 small commercial and community water systems that extract groundwater from the basin, including Garden Farms MWC and Green River Mutual Water Company. Overlying users include rural domestic residences and agricultural users.

The perennial yield of the Paso Robles Groundwater Basin (including the Atascadero Groundwater Sub-basin) is estimated to be 97,700 AFY (Fugro, 2005). A review of available data by Fugro (2002) found that groundwater quality in the basin is generally good. Five potential water quality issues, however, were identified (excluding the Atascadero Groundwater Sub-basin):

1. Increasing chlorides in the deep, historically artesian aquifer northeast of Creston
2. Increasing TDS and chlorides near San Miguel
3. Increasing nitrates in the Paso Robles Formation in the area north of Highway 46, between the Salinas River and the Huer Huero Creek;
4. Increasing nitrates in the Paso Robles Formation in the area south of San Miguel
5. Increasing TDS and chlorides in deeper aquifers near the confluence of the Salinas and Nacimiento Rivers

The 2009 Consumer Confidence Report for the City of Paso Robles reported no violations of MCL values for regulated substances and secondary substances in groundwater pumped

by its wells. The 2007 Consumer Confidence Report for the San Miguel CSD reported a measured arsenic concentration of 11 µg/L (MCL for arsenic is 10 µg/L) and a measured barium concentration of 71.5 µg/L (MCL for barium is 2 µg/L). The 2008 Water Quality Report for CSA 16-1 found that none of the tested regulated and secondary substances in water samples exceeded their MCL values.

Primary constraints on water availability in the basin include water rights, water quality, and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Board and no future plans exist to increase these demands beyond the current allocations. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation. In terms of physical limitations, Todd (2009) estimated the total groundwater pumping in the basin during 2006 to be 88,154 AF, which is 90 percent of the basin perennial yield of 97,700 AFY.

Portions of the Paso Robles Groundwater Basin have experienced significant water level declines over the past 15 to 20 years (Fugro 2002, Fugro 2005, Todd 2007, Todd 2009). The causes of the water level declines include a range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural ("ranchette") users. The County Board of Supervisors has certified a Level of Severity III for the main Basin and a Level of Severity I for the Atascadero Sub-basin based on findings in the 2009 Resource Capacity Study and an updated pumping analysis for the basin. As a result of the certification, certain land use and monitoring actions will be implemented by the County.

4.2.3.6 Cholame Valley WPA 15

Cholame Valley is the only groundwater basin in WPA 15.

4.2.3.6.1 *Cholame Valley Groundwater Basin*

The Cholame Valley Groundwater Basin is located in the Inland sub-region (Figure 15) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-5 (DWR 2003). The basin is located in both Monterey and San Luis Obispo counties and is 39,800 acres (62 square miles) in size. The basin is comprised of alluvium and is bounded in the southwest by the Paso Robles Formation. The valley is drained by Cholame Creek. The depths of the wells in this area ranged from 100 to 665 feet. Most wells were located on the fringe of the basin in the upper canyon areas and are used primarily for domestic water supply.

There are some small public water systems in the San Luis Obispo County portion of the basin. All other pumping is for residential and agricultural purposes by overlying users. No

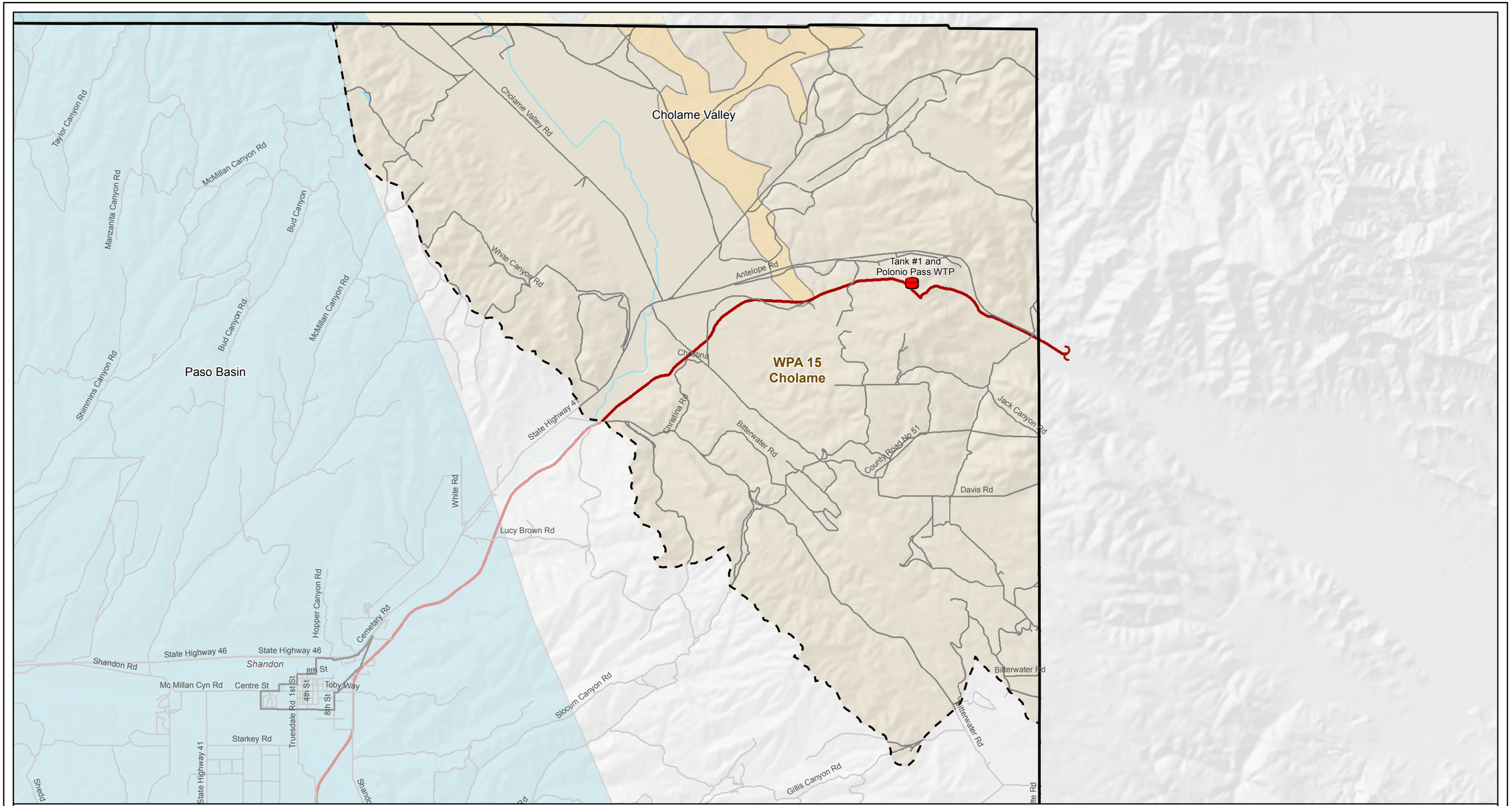

Figure 4.15
San Luis Obispo County
Water Planning Area 15
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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information is available describing basin yield. Very limited groundwater quality information has been published or described. Water quality data from non-specific sites indicate generally high concentrations of TDS, chlorides, sulfates, and boron (Chipping, et al., 1993). Constraints on water availability in this basin include physical limitations and water quality.

Published hydrogeologic information for this basin is limited. If the District requires more current or detailed information for this basin, new studies would be necessary.

4.2.3.7 Nacimiento WPA 16

There are no significant groundwater basins in WPA 16 (Figure 4.16). Public water systems such as Heritage Ranch Community Services District and the Nacimiento Water Company draw water from wells that rely on Nacimiento reservoir surface water or surface water releases.

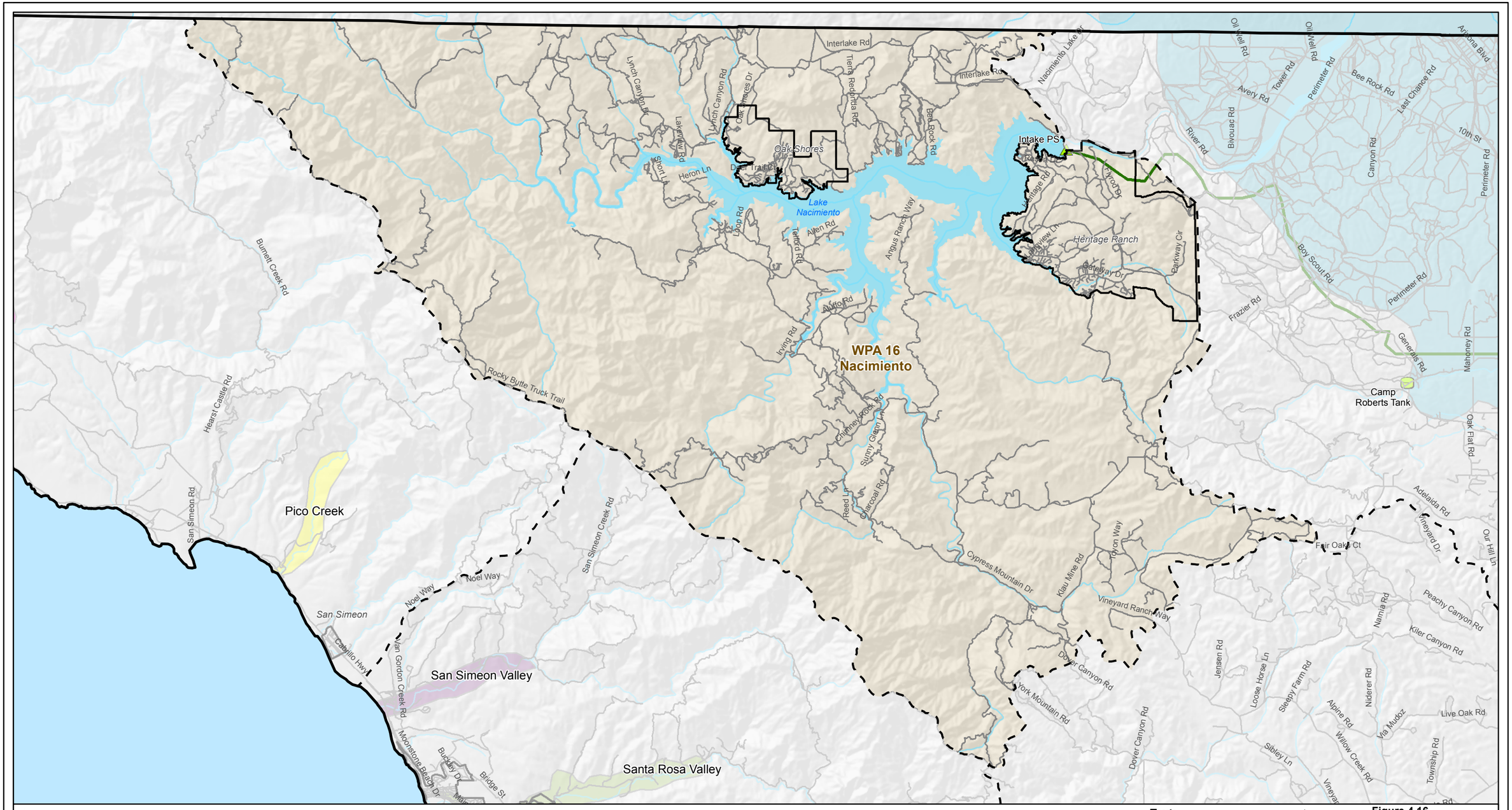
4.2.4 OTHER GROUNDWATER SUPPLY SOURCES

The groundwater basins described above comprise most of the groundwater supply sources in San Luis Obispo County. There are other areas, however, where groundwater wells tap fractured rock aquifers or other non-basin sources. Water resources in some of these areas have been studied on a multiple-parcel basis for specific planning issues or for small public water systems, but in most cases hydrogeologic data is only generated when a new well is drilled or a property is sold. Generally, available information is limited to specific wells; formation-wide data related to aquifer yield, water quality, or water availability is not available.

Table 4.4 lists some of the more developed supply sources of the County that are outside of groundwater basins discussed above. If the District requires more detailed information, focused studies would be necessary.

Table 4.4 Other Developed Supply Sources

Sub-Region	Area
North Coast	Villa/Cayucos/Old/Willow/Toro Creek Roads
Inland	Nacimiento/San Antonio Lakes
Inland	Adelaida
Inland	Park Hill
Inland	Templeton Hills
South Coast	San Luis Hills/Oak Park
South Coast	Nipomo Valley/Los Berros/Tematte Ridge



Legend

Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline

- Streets
- Major Rivers/Streams
- Urban Reserve and Village Reserve Lines (URL/VRL)
- Water Planning Area 16
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:
Water Planning Area
Groundwater Basin
URL/VRL
Water Facility
Hydrography

0 1 2 Miles

Figure 4.16
San Luis Obispo County
Water Planning Area 16
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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4.3 OVERVIEW OF SURFACE WATER SUPPLY

The information presented below was extracted from Technical Memorandum Number 3, Water Supply Inventory and Assessment – Water Supply, Demand and Water Quality, prepared by Wallace Group in association with Fugro West, Inc. and Cleath-Harris Geologists. For more detailed discussion on this information, please refer to **Appendix C**.

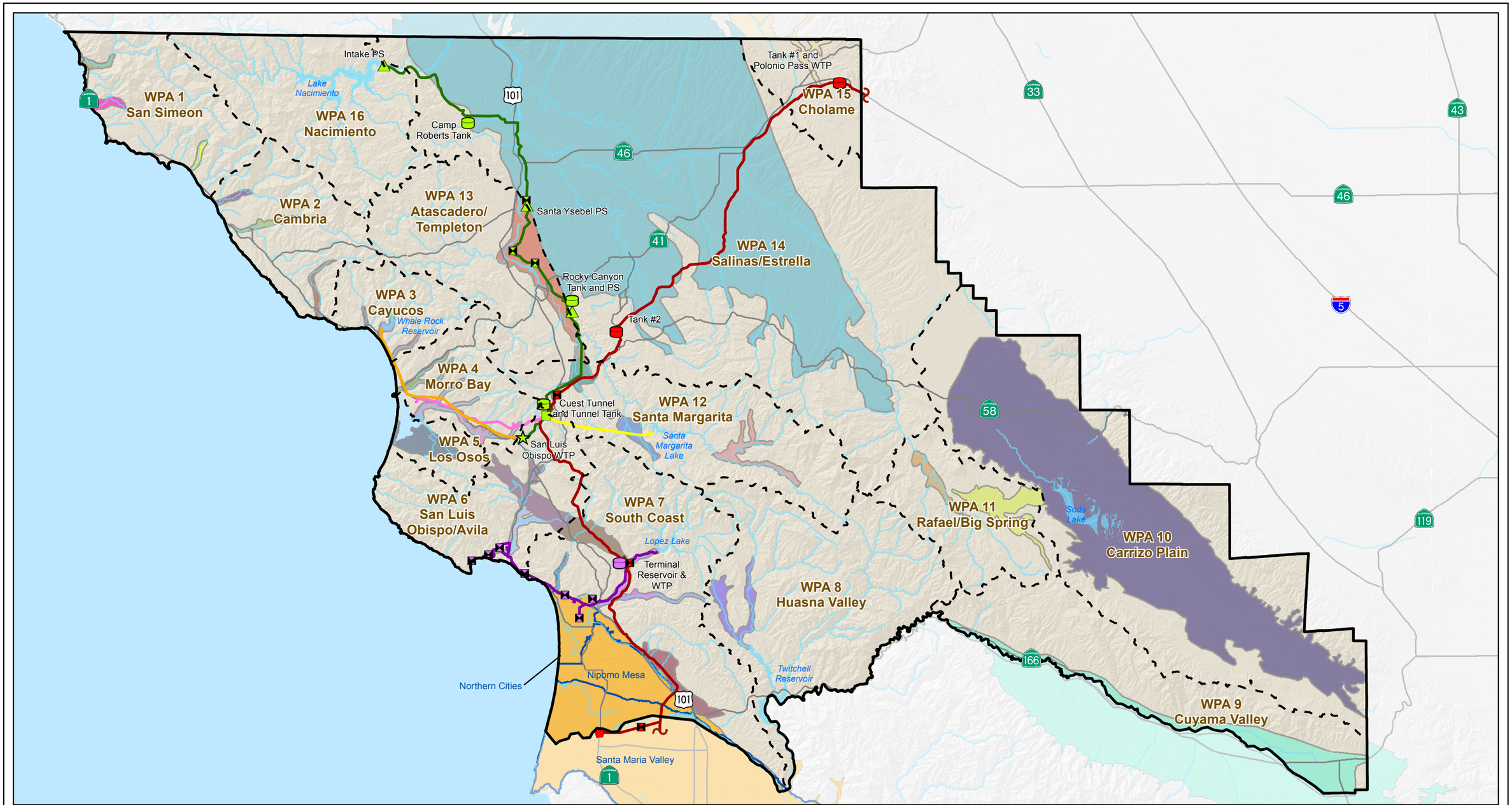
Water is drawn from a number of surface sources, both inside and outside of the County. This section describes the reservoirs that are used as water supply sources within the County. Allocations and key user agreements are described for each water source. Figure 4.17 shows the location of the transmission systems for these sources.

4.3.1 State Water Project

The California Department of Water Resources (DWR) owns and operates the State Water Project (SWP). In 1963 the District contracted with DWR for 25,000 AFY of State Water. The SWP began delivering water to the Central Coast in 1997 upon completion of the Coastal Branch conveyance and treatment facilities, serving Santa Barbara and San Luis Obispo Counties.

The treatment facility for State Water delivered through the Coastal Branch, known as the Polonio Pass Water Treatment Plant (PPWTP), is owned, operated and maintained by the Central Coast Water Authority (CCWA) for users in San Luis Obispo and Santa Barbara Counties. DWR owns the Coastal Branch transmission system, and they operate and maintain the raw water portion of the system. CCWA operates and maintains the treated water portion of the Coastal Branch. Agreements between CCWA, Santa Barbara County Flood Control and Water Conservation District and DWR are in place to establish these roles and relationships.

In San Luis Obispo County, decisions were made in the early 1990s by local municipalities and water purveyors that led to Water Service Amount (WSA) requests for portions of the District's allocation of State Water. After extensive policy discussions regarding the use of State Water, the District entered into Water Supply Agreements with the agencies identified in Table 4.5. Master Water Treatment and Coastal Branch construction agreements with CCWA were also approved for treatment of 4,830 AFY of State Water, the cumulative total of WSA requests.



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Water Facilities
- WTP
- Reservoir/Tank and/or WTP
- Local Facility
- Pump Station
- Turnout
- Tunnel Unit
- Water Transmission Line

Color Scheme
- California State Coastal Branch
- Lopez Water System
- Lake Nacimiento Water Project
- Salinas Reservoir System
- Whale Rock Reservoir System
- Chorro Valley Pipeline
- Highways
- Major Rivers/Streams
- Management Areas
- Water Planning Area
- Water Planning Area Boundary
- Groundwater Basins
- Waterbodies

Text:

Water Planning Area
Water Facility
Management Area
Hydrography

0 5 10 Miles

Figure 4.17
San Luis Obispo County
Water Planning Areas
Master Water Report
San Luis Obispo County Flood Control and Water Conservation District

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The SWP is considered a supplementary source of water supply since hydrologic variability, maintenance schedules, and repair requirements can cause reduced deliveries or complete shut down of the delivery system. Since delivery to the Central Coast began, the SWP has provided between 50 and 100 percent of the contracted allocations, but recently, drought coupled with pumping restrictions in consideration of endangered species habitat lowered that amount to 35 percent in 2008 and 40 percent in 2009. To receive a greater portion of State Water during these shortages (up to their full WSAs), most agencies have entered into "Drought Buffer Water Agreements" with the District for use of an additional portion of the District's SWP allocation, as shown in Table 4.5. For example, when the SWP can only deliver 50 percent of contracted allocations, an agency with 100 AFY WSA and 100 AFY drought buffer allocation can still receive 100 AFY WSA – 50 percent of their 100 AFY allocation plus 50 percent of their 100 AFY drought buffer allocation equals 100 AFY.

Table 4.5 also illustrates that the District has 15,273 AFY of unsubscribed SWP allocation (District allocation (25,000 AFY) minus Total Reserved (9,727 AFY) equals 15,273 AFY), commonly referred to as the "excess allocation." Hydraulics, treatment plant capacity, and contractual terms and conditions limit how the excess allocation can be used. The District is currently evaluating the available hydraulic capacity in the treated water portion of the Coastal Branch.

The following is a list of options for use of this excess allocation that will be explored further in this MWR:

- Direct delivery after contract-revision negotiation for use of any additional capacity available in the Coastal Branch treatment and conveyance facilities;
- As additional drought buffer water;
- Permanent, multi-year or single year transfer or exchange; and/or
- As a source of either groundwater recharge or surface storage.

Table 4.5 not only lists the WSA, drought buffer, and total reserve allocations for the District, but it also provides the average, maximum and minimum allocations based on the range of deliveries presented in Table 6.13 from the State Water Project Delivery Reliability Report 2007. The minimum, average, and maximum deliveries were 6, 66, and 100 percent of the maximum SWP Table A allocations, respectively. For long-term planning, it is assumed that SWP contractors will receive 66 percent of the maximum allocation in a given year.

Table 4.5 State Water Project Water Service Amount

Contractor	WSA	Drought Buffer	Total Reserved	6 percent Allocation Year (1977)[1]	66-69% Allocation Year[1]	100% Allocation Year[1]	WPA
Chorro Valley Turnout							
Morro Bay, City of	1,313	2,290	3,603	216	1,313	1,313	4
California Men's Colony	400	400	800	48	400	400	4
County Operations Center	425	425	850	51	425	425	4
Cuesta College	200	200	400	24	200	200	4
Subtotal	**2,338**	**3,315**	**5,653**	**339**	**2,338**	**2,338**	
Lopez Turnout							
Pismo Beach, City of	1,240	1,240	2,480	149	1,240	1,240	7
Oceano CSD	750	0	750	45	495	750	7
San Miguelito MWC	275	275	550	33	275	275	6
Avila Beach CSD	100	0	100	6	66	100	6
Avila Valley MWC	20	60	80	5	20	20	6
San Luis Coastal USD	7	7	14	1	7	7	6
Subtotal	**2,392**	**1,582**	**3,974**	**238**	**2,403**	**2,392**	
Shandon	100	0	100	6	66	100	14
Subtotal	**100**	**0**	**100**	**6**	**66**	**100**	
Total	**4,830**	**4,897**	**9,727**	**584**	**4,507**	**4,830**	

Notes:
1. Minimum, average, and maximum allocations established in the State Water Project Delivery Reliability Report 2007 (August 2008), page 51, Table 6.13. This study used 66 percent for the average allocation year.

Many factors will affect future SWP deliveries to the District and SWP subcontractors within the County, including Delta pumping restrictions and climate change. Estimating the delivery reliability of the SWP depends on many issues, including possible future regulatory standards in the Delta, population growth, water conservation and recycled efforts, drought buffer purchases, and water transfers. DWR published the State Water Project Delivery Reliability Report 2007 (August 2008). The report estimates future (2027) SWP delivery reliability and incorporates the 2007 federal court ruling for Delta pumping and potential impacts of future climate change. When compared to previous reliability reports, total

annual deliveries for 2027 show decreases in deliveries in most years if no actions are taken to address the factors causing the decrease in availability. It is important to recognize that actions to re-establish reliability are being evaluated by DWR State Water Contractors, and other State and Federal agencies. Future actions may include new environmental efforts as well as infrastructure improvements envisioned when the SWP was originally scoped in the 1960s.

Table 6.13 from the 2007 DWR reliability report contains the average, maximum, and minimum estimates of SWP Table A deliveries from the Delta under future conditions. Table 6.13 shows that average SWP delivery amounts may decrease from 8 to 11 percent of maximum SWP Table A amounts as compared to average SWP delivery amount estimates from previous reliability studies. In the 2005 DWR reliability report, delivery amounts were projected to be 77 percent of maximum SWP Table A amounts on average. The 2007 DWR reliability report projects delivery amounts to be 66 – 69 percent of maximum SWP Table A amounts on average. The decrease in deliveries is primarily due to flow targets related to Delta smelt, which reduces the amount of Delta water available for export by the SWP and the assumed hydrologic changes associated with climate change.

4.3.2 Nacimiento Water Project

The Monterey County Flood Control and Water Conservation District (now known as the Monterey County Water Resources Agency (MCWRA)) constructed the Nacimiento Dam in 1957. The dam and reservoir continue to be operated by MCWRA. The lake has a capacity of 377,900 acre-feet (AF) and a surface area of 5,727 acres. Water is collected from a 365 square mile watershed that is comprised of grazing lands and rugged wilderness.

In 1959, the District secured the rights to 17,500 AFY from Lake Nacimiento, with 1,750 AFY reserved for lakeside users and the Heritage Ranch Community Services District (Heritage Ranch CSD). After a long series of studies and negotiations, the Nacimiento Water Project (NWP) was initiated. The NWP is the single largest project that the District has ever undertaken. The total project cost, including design, construction, construction management, environmental permitting, and right-of-way, is approximately $176 million. Water deliveries have recently begun. The project will deliver raw lake water from Lake Nacimiento to communities within San Luis Obispo County. Participating entities and their contracted water amounts are listed in Table 4.6.

Table 4.6 Nacimiento Water Project Participants	
Participants	**Allocations (AFY)**
City of Paso Robles	4,000
Templeton CSD	250
City of San Luis Obispo	3,380
Atascadero Mutual Water Company	2,000
CSA 10 A (via exchange)[1]	25
Total	**9,655**

Notes:
1. See Whale Rock Reservoir Operating Agreements.

Though the participants have contracted for 9,655 AFY, the northern portions of the pipeline and appurtenances have been designed for the maximum allowable withdrawal amount of 15,750 AFY. Decreasing percentages of excess capacity are also designed into the southern reaches of the project. It is expected that additional allocations will be purchased in the future by existing participants or other entities. The mechanism by which the participation requests of other entities are considered varies depending on whether or not the entity was a part of the Environmental Impact Report (EIR). If the entity was a part of the EIR, it can proceed directly to the District Board of Supervisors for consideration. If it was not a part of the original EIR, it must consult with the Nacimiento Project Commission and obtain written support from existing participants that represent at least 55 percent of existing subscription amounts before proceeding to the District Board of Supervisors for consideration.

4.3.3 Whale Rock Reservoir

Whale Rock Reservoir is located on Old Creek Road approximately one-half mile east of the community of Cayucos. The State Department of Water Resources supervised the project's planning, design, and construction. Construction took place between October 1958 and April 1961. The reservoir is jointly owned by the City of San Luis Obispo, the California Men's Colony, and Cal Poly. These three agencies, with the addition of a representative from the Department of Water Resources, form the Whale Rock Commission, which is responsible for operational policy and administration of the reservoir and related facilities. Day-to-day operation is provided by the City of San Luis Obispo.

Whale Rock reservoir is formed by an earthen dam and was able to store an estimated 40,662 acre-feet of water at the time of construction. The calculation of the yield available is coordinated with Salinas Reservoir using a safe annual yield computer model. The model

also evaluates the effect of siltation. The Whale Rock Commission has budgeted for a siltation study to be undertaken in the near future.

Table 4.7 summarizes the current capacity rights for the joint right-holders (downstream water rights are accounted for separately). Each rights-holder manages reservoir withdrawals individually from their available water storage allocation. The Whale Rock Commission tracks withdrawals and reports available volume on a monthly basis.

Table 4.7 Whale Rock Reservoir Allocations

Water Users	Percent	Allocations (Acre-Feet)
City of San Luis Obispo	55.05	22,383
Cal Poly	33.71	13,707
California Men's Colony	11.24	4,570
Total	**100**	**40,660**

4.3.3.1 Operating Agreements

Several agreements establish policy for the operation of the Whale Rock system and actions of the member agencies. A brief description of the existing agreements that affect water delivery agreements and water rights are summarized below. Additional agreements are included in the Water Supply Inventory and Assessment Technical Memorandum in Appendix C.

A) Agreement for the construction and operation of the Whale Rock Project, 1957, set forth the project's capital cost distribution to the member agencies.

B) A supplemental operating agreement, 1960, established the Whale Rock Commission and apportioned the operating costs.

C) Downstream water rights agreement (the original 1958 agreement was amended in April 1996) defining water entitlements for adjacent and downstream water users. The Cayucos Area Water Organization (CAWO) affected by this agreement consists of three public water purveyors and the cemetery, all in the Cayucos area. In addition to the agencies, water entitlements were identified for two separate downstream land owners. Entitlements are as follows:

Table 4.8 Whale Rock Downstream Entitlements	
Water Users	**Downstream Water Entitlements (AFY)**
Cayucos Area Water Organization(CAWO)[1]	
Paso Robles Beach Water Association	222
Morro Rock Mutual Water Company	170
County Service Area 10A	190
Cayucos-Morro Bay Cemetery District	18
Mainini Ranch (Landowner)[2]	50
Ogle (Landowner)[2]	14
Total Downstream Entitlement	**664**

Notes:
1. The referenced agreement in Item C) above establishes the amount of 600 AFY to CAWO. The allocations to the CAWO members are part of an internal agreement amongst the members.
2. The agencies generally receive their entitlements via pipeline from the reservoir, while the land owners' entitlement is released from the reservoir.

D) An agreement for water allocation and operational policy between the agencies forming the Whale Rock Commission. The agreement established the accounting procedures to allow each agency to carry over excess or deficit water each year.

E) An agreement between the Whale Rock Commission and the California Men's Colony, 1990, to establish maintenance and operation criteria for the Chorro Booster pumps. The Commission installed the Chorro Booster pumps on the California Men's Colony turnout from the Whale Rock line to reduce system pressures required to provide full flow to the California Men's Colony water treatment plant. Pump and pump station maintenance, per the agreement, are the responsibility of the California Men's Colony.

F) An agreement between the Whale Rock Commission and the County of San Luis Obispo for connection to the Whale Rock pipeline, 1995, allowed a pipeline connection to deliver water to the Dairy Creek Golf Course. Typically, the golf course uses recycled water from the California Men's Colony. Under the terms of the agreement, water from Whale Rock Reservoir can be delivered when recycled water is not available.

G) Consent to common use agreement, 1996, between the Whale Rock Commission and the County of San Luis Obispo. The agreement allowed the installation of the State Water pipeline at seven locations within the existing Whale Rock pipeline easement.

H) A mutual aid agreement between the Whale Rock Commission and the City of Morro Bay, 2000, relative to water resources in the event of an emergency.

I) An exchange agreement, 2005, between CSA 10A and the City of San Luis Obispo allowing the delivery of up to 90 AFY of the City's Whale Rock water allocation to CSA 10A in exchange for CSA 10A's purchase of an equivalent amount of Nacimiento Water for delivery to the City. The anticipated need for CSA 10A is 25 AFY at build-out.

4.3.4 Lopez Lake/Reservoir

The District completed the Lopez Dam in 1968 to provide a reliable water supply for agricultural and municipal needs as well as flood protection for coastal communities. Lopez Reservoir has a capacity of 49,388 AF. The lake covers 950 acres and has 22 miles of oak covered shoreline. Allocations for Lopez Lake water are based on a percentage of the safe yield of the reservoir, which is 8,730 AFY. Of that amount, 4,530 AFY are for pipeline deliveries and 4,200 AFY are reserved for downstream releases. The dam, terminal reservoir, treatment and conveyance facilities are a part of Flood Control Zone 3 (Zone 3).

The agencies that contract for Lopez water in Zone 3 include the communities of Oceano, Grover Beach, Pismo Beach, Arroyo Grande, and County Service Area (CSA) 12 (including the Avila Beach area). Their allocations are shown in Table 4.9.

Table 4.9 Lopez Lake Allocations

Water Users	Allocation (AFY)
City of Pismo Beach	896
Oceano CSD	303
City of Grover Beach	800
City of Arroyo Grande	2,290
CSA 12	241
Total	**4,530**

Two issues could change the amount of water available to contractors and the safe yield. The Arroyo Grande Habitat Conservation Plan, which is currently being developed, will likely require additional downstream releases. An interim downstream release schedule has reduced the amount of water available to municipalities. Changes in operation of the dam are being considered for reducing spills and optimizing future deliveries. Additionally, the City of Pismo Beach, on behalf of the Zone 3 agencies, has taken the lead on conducting a study to consider the feasibility of modifying the dam to augment capacity of the reservoir.

4.3.5 Santa Margarita Lake/Salinas Reservoir

The Salinas Dam was built in 1941 by the War Department to supply water to Camp San Luis Obispo and, secondarily, to meet the water needs of the City of San Luis Obispo. The Salinas Reservoir (Santa Margarita Lake) captures water from a 112 square mile watershed and can currently store up to 23,843 acre-feet (AF). In 1947, the Salinas Dam and delivery system was transferred from the regular Army to the U.S. Army Corps of Engineers. Shortly thereafter, the District began operating this water supply for the City under a lease from the U.S. Army Corps of Engineers. Water from the reservoir is pumped through the Cuesta Tunnel (a one-mile long tunnel through the mountains of the Cuesta Ridge) and then flows by gravity to the City's Water Treatment Plant on Stenner Creek Road. Transfer of dam ownership to the District from the U.S Army Corps of Engineers is under consideration.

The original design of the dam included spillway gates that would have increased capacity to an estimated 45,000 AF, and an increase in safe annual yield of 1,650 AFY. Though these gates were not installed due to safety concerns, recent studies have shown that gates could be installed in conjunction with structural improvements to the dam. With its participation in the Nacimiento Water Project, the City has concluded that plans for expansion of the Salinas Reservoir should be put on hold. However, the City has requested to secure the license on the water rights to expand the reservoir's capacity.

The calculation of the yield available is coordinated with Whale Rock Reservoir using a safe annual yield computer model. The City's combined safe yield of the two reservoirs was 6,950 AFY in 2009. The model also accounts for the reduction in storage due to siltation.

4.3.6 Chorro Reservoir

(Information for this section was taken from an interview with John Kellerman, the Plant Manager at the California Men's Colony and from the 2003 Chorro Valley Study).

The Chorro Reservoir is less than one mile northeast of the California Men's Colony in the upper Chorro watershed. The Chorro Reservoir is part of the Chorro Valley Water System operated by CMC. The system provides storage, treatment and distribution to four major users:

- The California Men's Colony
- Camp San Luis Obispo (California National Guard)
- County Operations Center/Office of Education
- Cuesta Community College (Cuesta College)

The reservoir and treatment plant were constructed by the U.S. Army Corps of Engineers to provide water to Camp San Luis Obispo at the beginning of World War II. The net storage capacity of the Chorro Reservoir has decreased since it was constructed due to siltation, and was estimated to be 105 AF, based on a study prepared by DWR in 1989. More recent studies indicate that the capacity is currently closer to 90 acre-feet. Safe annual yield is

considered to be 140 AFY, as the watershed provides more than can be stored in the reservoir, even in drought years. It is worth noting that water demand at Camp San Luis Obispo, both during the war and subsequently, has been met almost exclusively through surface flows to the reservoir from the Chorro watershed and from groundwater wells on the Camp property. Although the Salinas Reservoir waterline was extended from the Cuesta Water Tunnel to the Chorro Reservoir as part of the original improvements in World War II, the pipeline has only been used to convey water from the Salinas Reservoir to the Camp twice since construction.

Camp San Luis Obispo has priority rights to water from Chorro Reservoir, with 140 AFY of entitlement. CMC has right to any excess. The Mainini Ranch has an agreement with the Camp for a delivery of up to 25 AFY, but has only used an average of 5 to 7 AFY over the past decade. For further discussion on agreements related to the Chorro Reservoir, see the description of the Chorro Valley Water System in the Water Planning Area Number 4 discussion below.

4.4 OTHER WATER SUPPLY SOURCES

4.4.1 Twitchell Reservoir

Twitchell Dam is on the Cuyama River about 6 miles upstream from its junction with the Sisquoc River. Though the dam is located in Santa Barbara County and operated by the Santa Maria Valley Water Conservation District (SMVWCD), the reservoir straddles the county line and some agricultural land within San Luis Obispo County is irrigated from the Santa Maria Groundwater Basin replenished by the reservoir. The multiple-purpose Twitchell Reservoir has a total capacity of 224,300 AF. It stores floodwaters of the Cuyama River, which are released as needed to recharge the groundwater basin and to prevent sea water intrusion. The reservoir supplies on average 32,000 AFY of recharge to the Santa Maria Valley Groundwater Basin, though this value fluctuates significantly relative to annual precipitation. Because the reservoir is managed for flood control and groundwater recharge, the reservoir is empty much of the time. A majority of the groundwater flows towards the ocean, though a small gradient flows seasonally to the Nipomo Mesa.

4.4.2 Desalination

4.4.2.1 Morro Bay Desalination

In the County, there is only one operating desalination facility, that being the City of Morro Bay's desalination plant. In the past, the Morro Bay has used the salt water reverse osmosis (SWRO) treatment plant to treat water from saltwater wells and to remove nitrates from fresh water wells. Recently the Morro Bay completed the installation of two 450 gallons per minute (gpm) brackish water reverse osmosis (BWRO) treatment trains. The addition of these treatment processes will enable the Morro Bay to treat both fresh water and salt water wells simultaneously, and will also reduce the energy usage of the facility as well. The SWRO trains are designed to produce approximately 645 AFY of

potable water from sea water. The BWRO system is capable of treating the entire 581 AF of Morro Basin groundwater that the Morro Bay can extract by permit.

The original capital cost for the BWRO system in 2003 was about $3.1 million. The operating costs for the facility vary widely depending on the amount the Morro Bay operates the plant. Based on a nearly continuous operation, the costs are about $1,700 per acre foot, including replacement of membranes and some appurtenances on a five-year cycle. With energy recovery equipment installed at a capital outlay of about $1 million, the operational cost for water would drop into the $1,100 -$1,300 per acre foot range.

4.4.2.2 Other Desalination Projects

The Cambria CSD has been striving to develop a seawater desalination plant to meet existing and future water demands. This plant, if implemented, is expected to produce up to 602 AFY. This plant will operate during the summer season to augment supply during the summer and high demand period (from summer tourism). A recycled water system is also planned, with an estimated 180 AFY made available for unrestricted irrigation use.

The City of Arroyo Grande, the City of Grover Beach, and the Oceano Community Services District participated in the evaluation of a desalination project to supplement their existing potable water sources. Currently, all three agencies receive water from various sources, including the California State Water Project, Lopez Lake Reservoir, and groundwater from the Arroyo Grande Plain Hydrologic Subarea that is part of the Santa Maria Valley Groundwater Basin. Recent projections of water supply shortfalls in the region motivated the agencies to conduct a more detailed study of desalination as a supplemental water supply. The study focused on utilizing the existing South San Luis Obispo County Sanitation District's (SSLOCSD) wastewater treatment plant to take advantage of utilizing the existing ocean outfall, while having the plant located near the ocean seawater source. The feasibility study, completed in 2008, was based on a 2,300 AFY seawater desalination facility. Some of the major points of interest and concern of this study include:

- Some 20 or more beach wells may be needed to provide enough seawater to produce the 2,300 AFY potable water.
- Permitting and environmental issues could be complex, and implementation could take eight years or longer.

Initial capital cost could be in the range of $35 million, and customer rates could be impacted by 18 percent to over 100 percent to fund the project, and would cost in the neighborhood of $2,300 per AF or more, on a 20-year life cycle basis.

4.4.3 Water Recycling

Several purveyors and agencies in the County recycle municipal wastewater. Details of each purveyor or sanitary agency's recycled water program are discussed later in this report. Recycled water qualities range from secondary quality (as defined by Title 22 California Code of Regulations (CCR)) to the highest level of treatment for unrestricted use.

The most established water recycling program in the County is that of the City of San Luis Obispo. The City of San Luis Obispo currently delivers 135 AFY to nearby golf courses, schools and commercial establishments, with expectations of increasing recycled water deliveries to 1,000 AFY. The City must also maintain discharge to San Luis Obispo Creek, and this flow amounts to approximately 1,800 AFY.

Other water recycling projects in the County include the following and are discussed briefly in the water supply sections for the respective communities:

- Nipomo CSD (Black Lake WWTP, Southland WWTP)
- California Men's Colony (Dairy Creek Golf Course)
- Templeton CSD (Meadowbrook WWTP/recharge Salinas River underflow)
- City of Atascadero WRF (Chalk Mountain Golf Course)
- Rural Water Company (Cypress Ridge Golf Course)
- Woodlands MWC (Monarch Dunes Golf Course)

A number of agencies have undertaken recycled water feasibility studies to determine the viability of developing recycled water projects. Such agencies include, but not limited to:

- San Simeon CSD
- Cambria CSD
- City of Morro Bay/Cayucos Joint WWTP
- City of Paso Robles
- South San Luis Obispo County Sanitation District (SSLOCSD) WWTP
- City of Pismo Beach
- City of Arroyo Grande
- Avila Beach CSD/Port San Luis
- Los Osos CSD

4.5 WATER CONSERVATION PROGRAMS

Water conservation programs are being implemented throughout the County. Most purveyors established water conservation programs during a prolonged drought in the early '90s. In the current drought, purveyors have been aggressively promoting conservation measures to their customers. Many have made mandatory conservation requirements part of the building code and others have provided incentives for voluntary conservation. Certain conservation measures are required as part of the State's Urban Water Management Plan (UWMP) program. Two voluntary organizations assist members to implement these and other conservation measures. The conservation element of the UWMP and the programs of the two agencies are described below.

4.5.1.1 Urban Water Management Plans:

California's Urban Water Management Planning Act (Act) requires that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should prepare and implement a plan (UWMP). The purpose is to ensure that the appropriate level of reliability in its water service is sufficient to meet the needs of its customers during normal, dry, and multiple dry years. The Act requires that an UWMP contain a discussion of a water purveyor's water Demand Management Measures (DMMs), including a description of each DMM currently being implemented or scheduled for implementation, the schedule of implementation for all DMMs, and the methods, if any, the supplier will use to evaluate the effectiveness of DMMs. The Act identifies 14 specific DMMs:

1. Water conservation coordinator;
2. Water Survey Programs for single-family residential and multi-family residential customers;
3. Residential plumbing retrofit;
4. System water audits, leak detection, and repair;
5. Metering with commodity rates for all new connections and retrofit of existing connections;
6. Large landscape conservation programs and incentives;
7. High-efficiency washing machine rebate programs;
8. Public information programs;
9. School education programs;
10. Conservation programs for commercial, industrial, and institutional accounts;
11. Wholesale agency programs;
12. Conservation pricing;
13. Water waste prohibition; and
14. Residential ultra-low flush toilet replacement programs.

The UWMP must discuss each of these potential DMMs and any other measures the supplier is implementing or has scheduled for implementation through a five-year period. The entire UWMP is to be updated every five years. If the water supplier does not schedule a particular DMM for implementation, the UWMP must include a cost-benefit evaluation that takes into consideration the economic, environmental, social, health, customer impact, and technological factors.

In addition to DMMs, the UWMP must also include a Water Shortage Contingency Plan, containing information on actions to be undertaken in response to water supply shortages of varying severity. These actions generally begin with voluntary conservation measures

during periods of moderate shortage or high demand and progress to increasingly stringent mandatory restrictions on water use during severe shortages. Most purveyors have put some level of these Contingency Plans into place during the current drought.

4.5.1.2 Partners in Water Conservation:

Partners in Water Conservation (PIWC) is a group of San Luis Obispo County water purveyors working together to provide the community with valuable information and educational opportunities on how to use water more efficiently, both indoors and outdoors. Members include:

- City of Arroyo Grande
- City of Grover Beach
- City of Morro Bay
- City of Paso Robles
- City of Pismo Beach
- City of San Luis Obispo
- County of San Luis Obispo
- Atascadero Mutual Water Company
- Cambria Community Services District
- Los Osos Community Services District
- Nipomo Community Services District
- Templeton Community Services District

The partnership has sponsored a number of programs and publications to promote conservation in the communities they serve. Some of their efforts include:

- Features of a Sustainable Landscape (brochure)
- Water Conserving Plants for Northern San Luis Obispo County (directory)
- Water Wise Landscape Workshops held annually in the summer
- Regular meetings of the membership to coordinate activities and to share lessons learned

In addition to joint activities, each of the members has water conservation programs in their service areas which are described in the discussion for each purveyor.

4.5.1.3 Agricultural Water Conservation Programs

The strategy to achieve agricultural water savings and benefits primarily includes improvements in on-farm technology and management. The strategy may be dependent on

an array of factors such as funding availability, environmental stresses, desire to increase yield, education, water supply development, sustainability, and economics.

The Central Coast Vineyard Team (CCVT) is a network of 300 local farmers that promotes sustainable vineyard practices to protect the resources valuable to farms and communities. Their mission statement is to identify and promote the most environmentally safe, viticulturally and economically sustainable farming methods, while maintaining or improving quality and flavor of wine grapes.

CCVT has always focused on the whole farm using an integrated framework for resource protection, which includes education on water conservation Best Management Practices (BMPs). Given the increased focus on groundwater resources based on declining water levels, CCVT is committed to prioritizing water conservation in its programs.

CCVT developed topic specific tailgate meetings, which are characterized by in field demonstrations. Tailgates highlight growers who are successfully implementing specific water BMPs and provide hands-on opportunities for attendees to refine their skills and knowledge. This grower-to-grower approach, coupled with input from technical advisors, is an extremely effective outreach method.

Another program that promotes agricultural water conservation is the Agricultural Water Enhancement Program (AWEP). AWEP is a voluntary conservation initiative that provides financial and technical assistance to agricultural producers to implement activities on agricultural land for the purposes of conserving surface and groundwater, and improving water quality. As part of the Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP), AWEP operates through contracts with producers to plan and implement conservation practices in project areas established through partnership agreements.

The Mobile Water Lab Program Irrigation Systems Evaluation is offered by the Cachuma Resource Conservation District and provides free irrigation system evaluations to turf irrigators. It evaluates systems individually and makes recommendations to improve performance. Over 800 evaluations have been performed on over 70,000 acres in San Luis Obispo and Santa Barbara Counties. Irrigation evaluations use standard procedures developed by Cal Poly and the California Department of Water Resources.

4.5.1.4 California Urban Water Conservation Council

The California Urban Water Conservation Council (CUWCC) was created to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities. The Council's goal is to integrate urban water conservation Best Management Practices (BMPs) into the planning and management of California's water resources. Members pledge to develop and implement 14 comprehensive conservation BMPs. These are identical to the 14 DMMs required by the UWMP Act. CUWCC offers an extensive array of resources to assist members in their conservation goals, including model municipal codes, sample surveys, conservation publications,

descriptions of lessons learned from other members, and variety of technical resources to assist water suppliers in planning, estimating costs, and determining impact of BMP implementation.

County members include:

- City of Pismo Beach
- City of San Luis Obispo
- Central Coast Water Authority
- Golden State Water Company
- Atascadero Mutual Water Company
- Cambria Community Services District
- Nipomo Community Services District
- Templeton Community Services District

4.5.1.5 Decentralized Water Supply Opportunities

Considering that the majority of potable water supply at the household level is consumed for non-potable uses such as toilet flushing and outdoor irrigation, there are opportunities for homeowners and businesses to develop their own non-potable water sources on a small scale basis. Along those lines, two “green” technologies that have been given significant attention recently are graywater recycling and stormwater reuse/rainwater harvesting.

Typical graywater systems harvest wastewater from households or buildings that have not come into contact with toilet or kitchen sink waste. The harvested water is then filtered for distribution in underground irrigation systems. More elaborate systems can be designed to use graywater for toilet flushing, though plumbing codes make this option more complex. The San Luis Obispo Coalition of Appropriate Technology (SLO-COAT) as recently published a homeowner’s guide to the design and construction of relatively simple graywater systems that can be used for outdoor irrigation. The State is also revising plumbing codes to make graywater systems easier to install.

Promotion of stormwater reuse has been adopted by the SWRCB as part of the latest strategic plan, and is part of the State’s recently adopted water recycling policy. Stormwater reuse is considered a locally available, sustainable supply, consistent with implementation of the California Global Warming Solutions Act of 2006, and other State and regional efforts.

Rainwater harvesting is a form of stormwater reuse, usually practiced on a small scale by homeowners. Rainwater harvesting is the process of intercepting stormwater runoff from a surface (e.g. roof, parking area, land surface), and putting it to beneficial use. Intercepted stormwater can be collected, slowed down, and retained or routed through the site landscape using cisterns, microbasins, swales and other water harvesting structures. Water

harvesting reduces dependence on dwindling groundwater reserves and expensive imported water. Capturing and using stormwater runoff also reduces site discharge and erosion, and the potential transport of stormwater pollutants.

Stormwater reuse can be promoted in a variety of ways. For example, the City of Tucson, Arizona became the first municipality in the country to require developers of commercial properties to harvest rainwater for landscaping. The new measure – approved by a unanimous vote by the City Council – requires that new developments meet 50 percent of their landscaping water requirements by capturing rainwater. The new rule went into effect June 1, 2010.

Consumer education is also a common approach to promoting stormwater capture and reuse. The City of Tucson has published its Water Harvesting Guidance Manual and the Texas Water Development Board has published the Texas Manual on Rainwater Harvesting. At the local level, SLO-COAT is planning to release a homeowner's guide to Low Impact Development, which will emphasize simple techniques for stormwater capture and reuse at the household level.

The Atascadero Mutual Water Company has instituted a rebate program aimed at reducing landscape irrigation. One of the conservation measures supported by the program is the installation of rainwater harvesting systems at the household level, providing a rebate of up to $250 for storage tanks or cisterns designed to capture rainfall for use during dry periods.

Cambria CSD requires that residences built on properties larger than 8,000 square feet must have non-potable water collection cisterns for irrigation watering. 22 cisterns have been installed to date.

4.6 WATER SUPPLY, DEMAND, WATER QUALITY

The information presented below was extracted from Technical Memorandum Number 3, Water Supply Inventory and Assessment – Water Supply, Demand and Water Quality (Wallace Group et al., Appendix C), which summarizes urban water demand and supply, and from the Water Demand Methodology and Results Memorandum (ESA, Appendix D), which summarizes rural, agricultural, and environmental water demands.

This section presents an overview on water supply resources, demand and water quality throughout the County. Also described in this section are the different agreements/contracts of water purveyors in the County with respect to water allocations, and cooperative agreements between multiple parties for overall management of shared water resources. Also discussed are other water resources including recycled water and desalination.

Water is drawn from a number of surface sources, both inside and outside of the County. This section describes the reservoirs in and out of the County that are used as water supply sources within the County. It also includes a brief description of the State Water Project. Allocations and key user agreements are described for each water source. Figure 4.17 shows the location of the conveyance systems for these sources.

4.6.1 Total Water Demand

County water demand is divided into four categories: urban, rural, agricultural and environmental. Total demand is defined as the sum of urban, agricultural, and rural demand. Environmental water demand refers to the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat. Environmental water demand, while estimated and documented in a separate row in the summary tables, is not included in the total demand to differentiate between demands for urban, agricultural and rural users and those needed for environmental habitat.

The following discussion is an overview of the County water demands by water planning area. A detailed discussion follows this overview and provides more information on the individual users within each WPA.

Various data sources were used to arrive at the demands presented below and the projections for many of the users are not consistent. The County MWR demand summary is not intended to be conclusive, but offer a potential estimate and range of demands that could be experienced County-wide.

4.6.1.1 Method for Calculating Demand

The total water demand was calculated for existing and future conditions throughout the County. For calculating the existing water demand, this analysis utilized the most recent available data at the time the analysis was conducted. Details about the data were discussed earlier in this chapter. For future water demand, the study investigated the projected demand for the future if urban, rural and agricultural development progresses according to current general plans. The study created a geodatabase, which includes categories of water demand for existing and future conditions, as well as the total water demand, for each of the WPAs. For some areas in the County, this study relied on existing reports for the demand information. Water purveyors throughout the County were contacted about existing and future conservation. Specific conservation factors were applied to the future urban water demand projections for urban areas where these factors were available. More detail on the method for calculating water demand is available in Appendix D (Water Demand Methodology and Results Memorandum, ESA, January 2010).

4.6.1.2 Assumptions for Calculating Demand

Calculating the existing total water demand and projecting the future total water demand requires a number of assumptions, as well as review and analysis of existing data for each of the categories. Two general assumptions are outlined below while assumptions specific to each of the individual water demand categories are discussed within the individual category sections:

- Existing demands represent average annual use, in acre-feet per year (AFY). The demand can vary widely on smaller timescales, such as a daily or monthly demand. Rural water demand is based on an acre-foot per dwelling unit factors that were developed for coastal and inland hydrologic regions based on a review of average use

in those areas from available use data in rural areas. Agricultural water demand is based on an acre-foot per acre per crop type factors that were developed for coastal and inland hydrologic regions based on a review of available studies, since actual usage data is limited. Use of water for ranching and pasture irrigation, among other uses not captured in pesticide reports, are not included. In Water Planning Areas where the majority of land is used for these purposes, the agricultural water demand may be significantly underestimated. Analysis of diversion rights records would help to address this issue in future updates to the Master Water Report.

- Future water demand is shown as a range whenever possible. For urban areas, the minimum projected future water demand accounts for conservation and the maximum projected future water demand represents a maximum buildout scenario as defined by water management plans, water master plans, or other purveyor provided information. The amount of future conservation was provided by and varied by purveyor. The projected demand is not associated with a particular year because the year of maximum buildout is unknown and varies between water planning areas. For agricultural demand, the range represents the difference between using low and high end values for existing and future irrigation efficiencies and rain totals. Consideration of recent shifts in agricultural production was included in the analysis for future agricultural demand as described in Appendix D (Water Demand Analysis Methodology and Results Memorandum, ESA). However, a comprehensive analysis of potential future agricultural cropping patterns based on a review of provisions in conservation easements, diversion permits and other scenarios was not included. For rural demand, the future range represents the difference between different development and conservation scenarios.

4.6.1.3 Total Demand by WPA

Table 4.10 summarizes the total water demand, including urban, agricultural, and rural water demand, as well as the environmental demand, developed for each of the 16 WPA's.

Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas[(1)]					
WPA	WPA Name/Category	Existing Demand (AFY)	Projected Demand (AFY)		
1	**San Simeon**				
	Urban	108	250	--	250
	Agricultural	70	10	--	60
	Rural	20	50	--	50
	Total	**198**	**310**	**--**	**360**
	Environmental	72,980	72,980		
2	**Cambria**				
	Urban	706	1,009	--	1,514
	Agricultural	640	740	--	1,490
	Rural	100	190	--	220
	Total	**1,446**	**1,939**	**--**	**3,224**
	Environmental	51,460	51,460		
3	**Cayucos**				
	Urban	432	608	--	641
	Agricultural	520	430	--	800
	Rural	80	130	--	140
	Total	**1,032**	**1,168**	**--**	**1,581**
	Environmental	26,160	26,160		

Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas[1]					
WPA	WPA Name/Category	Existing Demand (AFY)	Projected Demand (AFY)		
4	**Morro Bay**				
	Urban	3,112	3,532	--	3,532
	Agricultural	2,060	1,690	--	2,440
	Rural	120	190	--	220
	Total	**5,292**	**5,412**	**--**	**6,192**
	Environmental	27,880	27,880		
5	**Los Osos**				
	Urban	2,043	2,296	--	2,870
	Agricultural	3,290	2,750	--	3,770
	Rural	20	20	--	20
	Total	**5,353**	**5,066**	**--**	**6,660**
	Environmental	7,040	7,040		
6	**SLO/Avila**				
	Urban	7,878	9,641	--	10,149
	Agricultural	3,610	2,810	--	4,120
	Rural	460	610	--	660
	Total	**11,938**	**13,061**	**--**	**14,929**
	Environmental	33,030	33,030		

Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas[1]					
WPA	WPA Name/Category	Existing Demand (AFY)	Projected Demand (AFY)		
7	**South Coast**				
	Urban	410	434	--	482
	Agricultural	19,920	16,610	--	23,830
	Rural	1,480	1,990	--	2,160
	NCMA[2]	9,636	12,363	--	13,826
	NMMA[2]	11,278	12,654	--	14,898
	SMVMA[2]	25,577	25,650	--	25,650
	Total	**68,301**	**69,701**	**--**	**80,846**
	Environmental	32,960	32,960		
8	**Huasna Valley**				
	Urban	0	0	--	0
	Agricultural	1,550	2,060	--	2,820
	Rural	90	360	--	450
	Total	**1,640**	**2,420**	**--**	**3,270**
	Environmental	25,020	25,020		
9	**Cuyama Valley**				
	Urban	0	0	--	0
	Agricultural	28,870	25,320	--	32,410
	Rural	10	80	--	100
	Total	**28,880**	**25,320**	**--**	**32,510**
	Environmental	Undetermined	Undetermined		

Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas[1]					
WPA	WPA Name/Category	Existing Demand (AFY)	Projected Demand (AFY)		
10	**Carizzo Plain**				
	Urban	0	0	--	0
	Agricultural	800	680	--	890
	Rural[3]	210	9,610	--	12,740
	Total	**1,010**	**10,290**	**--**	**13,630**
	Environmental	Undetermined	Undetermined		
11	**Rafael/Big Spring**				
	Urban	0	0	--	0
	Agricultural	0	0	--	0
	Rural	0	470	--	620
	Total	**0**	**470**	**--**	**620**
	Environmental	Undetermined	Undetermined		
12	**Santa Margarita**				
	Urban	1,785	5,474	--	6,082
	Agricultural	1,770	1,720	--	2,680
	Rural	240	450	--	520
	Total	**3,795**	**7,644**	**--**	**9,282**
	Environmental	32,850	32,850		
13	**Atascadero/ Templeton**				
	Urban	12,358-12,403	12,650	--	13,681
	Agricultural	10,620	9,740	--	14,600
	Rural	1,480	1,810	--	1,930
	Total	**24,458-24,503**	**24,200**	**--**	**30,211**
	Environmental	41,010	41,010		

Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas[(1)]					
WPA	**WPA Name/Category**	**Existing Demand (AFY)**	**Projected Demand (AFY)**		
14	**Salinas/Estrella**				
	Urban	4,635	9,349	--	11,644
	Agricultural	67,610	60,740	--	86,820
	Rural	3,590	5,570	--	6,230
	Total	**75,835**	**75,659**	**--**	**104,694**
	Environmental	Undetermined	Undetermined		
15	**Cholame Valley**				
	Urban	0	0	--	0
	Agricultural	80	60	--	80
	Rural	10	150	--	190
	Total	**90**	**210**	**--**	**270**
	Environmental	Undetermined	Undetermined		
16	**Nacimiento**				
	Urban	619	935	--	1,039
	Agricultural	3,860	4,740	--	7,120
	Rural	280	730	--	880
	Total	**4,759**	**6,405**	**--**	**9,039**
	Environmental	108,390	108,390		

Notes:

1. Urban demand: Low projected demand includes conservation factor of 0 to 20 percent, based on anticipated conservation. Agricultural demand: Affected by a wide range of conditions, including lack of data, weather conditions, changes in commodities and differences in irrigation practices. Future projections may not reflect the actual future water use or need, because of constant changes in farming practices. Projected agricultural demand may be significantly higher if more land is converted from dry to irrigated farming. Rural demand: Minimum projected rural demand reflects a 75 percent buildout scenario.
2. Demand for WPA 7 management areas is from 2009 or 2010 reports from NCMA (GEI, 2011), NMMA (NMMA, 2011), and SMVMA (Luhdorff and Scalmanini, 2009). SMVMA is approximated based on the proportion within San Luis Obispo County
3. Carrizo Plain rural demand projections are based on existing zoning, which includes the potential for extensive California Valley development. The actual development may be much lower than 75 percent due to limited groundwater and other factors.

4.6.2 Urban Water Demand

Urban water demand refers to residential, commercial, industrial, parks, institutional, and golf course water demand within many of the unincorporated communities and incorporated cities in the County. For purposes of the MWR, the urban water demand includes all unincorporated communities and incorporated cities in the County where water purveyors have provided water demand information for this project.

4.6.2.1 Sources of Information

Primary sources of data include the water system master plans (WSMP) and urban water management plans (UWMP) prepared by water purveyors, incorporated cities, and unincorporated communities. All of the urban areas have adopted a WSMP or UWMP during the last 10 years. Additionally, the County's 2008 Resource Management System Annual Resource Summary Report provides existing projected water demand and population for these areas (County, 2008). Each water purveyor was also provided the opportunity to comment and correct the water demand and supply information.

4.6.2.2 Method/Assumptions: Existing Use and Future Water Demand

Existing water use calculations and future water demand projections from WSMPs and UWMPs were used. UWMPs are available for incorporated cities and include existing and future water demand. WSMPs are available for unincorporated communities within Urban Reserve Lines (URLs) and some of the incorporated communities within the Village Reserve Lines (VRLs), and include existing and future water demand. Cities, community services districts, county service areas, or other water purveyors service the urban areas where water usage has been reported. The project team reviewed the UWMPs and WSMPs prepared by these water purveyors and provided a summary of the available existing and future urban water demand and supply presented in these documents. The urban water demand for individual areas in the County are associated with an ArcGIS® layer that includes the existing and future urban demand. The range of future demand represents different development and conservation scenarios.

4.6.2.3 Urban Water Demand by WPA

Table 4.11 summarizes the urban water demand for all the WPAs. WPAs 8, 9, 10, 11, and 15 do not have urban demand because there are no large population centers in these WPAs. The urban water demand is discussed in further detail in future sections of this chapter.

4.6.3 Agricultural Water Demand

Agricultural water demand refers to the annual applied water in all agricultural areas in the County. More detail on the method for calculating agricultural demand is available in Appendix D (Water Demand Methodology and Results Memorandum, ESA). The vineyard community in the North County is participating in a program led by the University of California, Davis, Cooperative Extension to estimate applied water per acre that will provide

detailed information for the Estrella/Creston area and may serve as a model for implementation throughout the County.

Table 4.11 Urban Water Demand by Water Planning Area (1)

WPA No.	WPA Name	Existing (AFY)	Forecast (AFY)
1	San Simeon	108	250
2	Cambria	706	1,009 – 1,514
3	Cayucos	432	608 - 641
4	Morro Bay	3,112	3,532
5	Los Osos	2,043	2,296 - 2,870
6	San Luis Obispo/Avila	7,878	9,641 – 10,149
7	South Coast	410	434 - 482
	NCMA	6,141	9,583-11,046
	NMMA	6,878	8,314 – 8,808
12	Santa Margarita	1,819	5,571 - 6,190
13	Atascadero/Templeton	12,403	12,650 – 13,681
14	Salinas/Estrella	4,635	9,349 – 11,644
16	Nacimiento	619	987 - 1,039

Notes:
1. WPAs 8, 9, 10, 11, and 15, as well as SMVMA in WPA 7, do not have any urban water demand.

4.6.3.1 Sources of Information

The Agriculture/Crop ArcGIS® layer for the County from August 2008 was used to determine existing agricultural acreage for each crop group. This layer is updated yearly with information from the pesticide use permits growers obtain through the San Luis Obispo Department of Agriculture. These permits are not entirely accurate as they occasionally include permanent crops which are planned and include many annual crops which may or may not be planted based upon various factors (Isensee, 2009a). The number of crop rotations varies and is not identified in the Agriculture/Crop ArcGIS® layer. The majority of irrigated vegetables are rotated numerous times throughout the year. Coastal areas with available water may have multiple crops planted in a particular year (Isensee, 2009c).

The California Irrigation Management Information System (CIMIS) and University of California Cooperative Extension Leaflets 21426 to 21428 data were used as reference evapotranspiration (ETo) and crop coefficients (Kc) for areas where data were available

(CIMIS, 2009; Snyder et al., 1987, 1989a, 1989b). The rainfall data utilized is from County gages, the County Hydrology Report (County, 2005), and District maps (County, 2009). The project team contacted two UC Farm Advisors (Mark Battany and Mark Gaskell) in San Luis Obispo County and obtained information on frost protection and leaching requirements. Irrigation efficiency information was obtained from a Cachuma Resource Conservation District (CRCD) Irrigation Specialist (Kevin Peterson), as well as from Ms. Kris Beal O'Connor, the Central Coast Vineyard Team (CCVT) Executive Director. Additionally, the team used DWR estimates of the quantity of water applied to a specific crop per unit area (DWR 2009a).

4.6.3.2 Method/Assumptions: Existing Agricultural Demand

The agricultural crop ArcGIS® layer includes approximately 200 classifications of commodities. This included approximately 86,000 acres of rangeland and 42,000 acres of uncultivated agriculture. For purposes of this analysis, the irrigated commodities were categorized into seven groups (Table 4.12).

Table 4.12 Crop Group and Commodities Used for the Agricultural Demand Analysis

Crop Group	Primary Commodities
Alfalfa	alfalfa
Nursery	Christmas trees, miscellaneous nursery plants, flowers
Pasture	miscellaneous grasses, mixed pasture, sod/turf, sudangrass
Citrus	avocados, grapefruits, lemons, oranges, olives, kiwis, pomegranates
Deciduous	apples, apricots, berries, peaches, nectarines, plums, figs, pistachios, persimmons, pears, quince, strawberries
Vegetables	artichokes, beans, miscellaneous vegetables, mushrooms, onions, peas, peppers, tomatoes
Vineyard	wine grapes, table grapes

Avocados and citrus are included in the same crop group to be consistent with DWR crop groups (DWR 2001) and annual agricultural water use monitoring by Gene Melschau, a Nipomo farmer (Melschau, 2009). Although the groups are based on commodities that may have similar water requirements, the actual water usage will vary based on individual commodities, soil type, and number of rotations on individual parcels. Almonds are not included in the commodity (deciduous) list because most almond orchards in the County are not irrigated (Isensee, 2009b). The existing acreage of irrigated crops, as reported by growers, is shown in Table 4.13. The acreage changes on a monthly or annual basis and can be readily updated in ArcGIS® and annual applied water can be recalculated.

Table 4.13 Existing Irrigated Crop Acreage Determined in GIS[1]

WPA #	WPA Name	Alfalfa (ac)	Citrus (ac)	Deciduous (ac)	Nursery (ac)	Pasture (ac)	Vegetable (ac)	Vineyard (ac)	Total (ac)
1	San Simeon		19					64	**83**
2	Cambria		343	26	2		188	45	**603**
3	Cayucos		345				107	5	**456**
4	Morro Bay		672		0	35	497	76	**1,281**
5	Los Osos			4	104	505	903	1	**1,515**
6	San Luis Obispo/Avila		219	182	40	209	881	538	**2,070**
7[2]	South Coast		4,018	24	208	530	3,231	3,198	**11,210**
8	Huasna Valley		19	5			160	472	**656**
9	Cuyama Valley			642			9,083	211	**9,936**
10	Carrizo Plain		250						**250**
12	Santa Margarita	15		7		55		974	**1,051**
13	Atascadero/Templeton		32	712	80	589	17	3,434	**4,864**
14	Salinas/Estrella	800	319	655	76	1,446	2,098	27,424	**32,818**
15	Cholame Valley		26						**26**
16	Nacimiento		45	780[3]		10		974	**1,809[4]**
	TOTAL	**815**	**6,307**	**3,037**	**510**	**3,377**	**17,166**	**37,416**	**68,629**

Notes:
1. Acreages were determined by aggregating County Crops ArcGIS® (2008) data, which is based on the pesticide use records, and crops identified in the County Land Use ArcGIS® (2009) data. These values are aggregated in a database file exported from ArcGIS® and summarized in a pivot table. The County Crops ArcGIS® data does not include any irrigated crop acreage in WPA 11.
2. The agricultural acreage determined in GIS for WPA 7 only includes areas outside of the NCMA, NMMA, and SMVMA. The amount of irrigated acreage for these management areas is approximately 1,600 acres for NCMA (Todd Engineers, 2009), 2,600 acres for NMMA (NMMA, 2009), and 10,500 acres for SMVMA (Luhdorff and Scalmanini, 2009). 99.9 percent of strawberries in the County are located in these three areas.
3. 780 acres might exceed the actual irrigated deciduous acreage, primarily because it appears to include walnut orchards, which are predominately dry-farmed.
4. The total for WPA 16 could be as low as 1,100 acres of irrigated crops in 2008.

The project team calculated the crop-specific applied water for these crop groups by utilizing information on crop evapotranspiration, contribution from rain or shallow water table, leaching requirements, irrigation efficiency, and frost protection. See Appendix D for more information on the equation that was used to calculate the annual crop-specific applied water for each of the water planning areas and for a detailed discussion of the parameters in the equation.

4.6.3.3 Method/Assumptions: Future Agricultural Demand

Similar methods and equations were used to calculate the future irrigation water requirements. The calculation of future agricultural demand is different from existing use due to changes in cropping patterns, weather patterns, and irrigation methods. Over the past 20 years, irrigation efficiencies have improved substantially. Although predicting future agricultural demand is very difficult, according to the Agricultural Commissioner and a CRCD Irrigation Specialist, irrigation efficiencies are likely to continue to improve due somewhat to site specific monitoring of soil water availability and crop needs, planting of root stock that is more drought tolerant, or modification of irrigation techniques based upon ongoing research (Isensee, 2009c; Peterson, 2009b). Growers may also face economic pressure due to increased pumping costs or other factors, or may have economic incentives for the development of higher water efficiencies (Isensee, 2009c). Therefore, this study assumed higher irrigation efficiencies for projected future agricultural demand than in existing demand calculations. More details about how the irrigation efficiencies were determined are included in Appendix D.

Based on recent trends in agriculture, much of the additional projected future irrigated land could be converted to vineyards. For purposes of this analysis, this study assumed that the 6,000 acres of hay and oats identified in the 2008 ArcGIS® crop layer would be converted to vineyards. The County has approximately 70,000 acres of farmland enrolled in the Federal Conservation Reserve Program (CRP) (USDA, 2009). Many of the existing CRP contracts will expire in the next 10 years. If there is sufficient water available, much of this farmland could enter into irrigated production (Isensee, 2009c). This study estimated future irrigated crop acreage by adding existing irrigated crop acreage plus inactive irrigated crop acreage and approximately 6,000 acres of future vineyards (converted from existing oat and hay acreage). The total future irrigated crop acreage, including WPA 7 management areas, was approximately 95,000 acres compared to existing crop acreage of about 83,000 acres. This analysis does not account for annual rotation from fallow to cultivated land. Projected future irrigated acreage is presented in Table 4.14.

Forecasting agricultural demand is affected by a wide range of conditions, including a lack of data about current agricultural demand; variations in soil types and weather conditions; changes in crop type, regulations, economics and trade agreements, tax policy, changes in land use, and irrigation practices. Future projections may not reflect the actual future water

Table 4.14 Forecast Irrigated Crop Acreage Determined in GIS[1]

WPA #	WPA Name	Alfalfa (ac)	Citrus (ac)	Deciduous (ac)	Nursery (ac)	Pasture (ac)	Vegetable (ac)	Vineyard (ac)	Total (ac)
1	San Simeon		19					64	83
2	Cambria		409	28	2		395	457	1,291
3	Cayucos		477				108	13	598
4	Morro Bay		722		0	35	527	96	1,380
5	Los Osos		21	4	104	505	995	1	1,628
6	San Luis Obispo/Avila		224	182	40	209	920	542	2,117
7[2]	South Coast		4,048	44	209	703	3,378	3,740	12,122
8	Huasna Valley		19	5	4	97	160	670	954
9	Cuyama Valley			642			9,501	211	10,354
10	Carrizo Plain		251	1			3		255
12	Santa Margarita	15	4	9		95		1,284	1,406
13	Atascadero/Templeton		54	778	80	814	47	4,774	6,547
14	Salinas/Estrella	800	381	879	78	1,886	2,121	32,086	38,232
15	Cholame Valley		26						26
16	Nacimiento		48	846[3]		10		2,441[4]	3,345
	TOTAL	815	6,703	3,418	517	4,352	18,154	46,380	80,338

Notes:
1. The agricultural acreages were determined by aggregating County Crops ArcGIS® (2008) data, which is based on the pesticide use records, and crops identified in the County Land Use ArcGIS® (2009) data. These crop acreages are aggregated in a database file exported from ArcGIS® and inputted into spreadsheets. The County Crops ArcGIS® data does not include any irrigated crop acreage in WPA 11.
2. The agricultural acreage determined in GIS for WPA 7 only includes areas outside of the NCMA, NMMA, and SMVMA. The amount of irrigated acreage for these management areas is approximately 1,600 acres for NCMA (Todd Engineers, 2009), 2,600 acres for NMMA (NMMA, 2009), and 10,500 acres for SMVMA (Luhdorff and Scalmanini, 2009). 99.9 percent of strawberries in the County are located in these three areas.
3. To reach this total, there would have to be an expansion of irrigated orchards and a conversion of acres that are currently dry farmed to irrigated farmland in the future.
4. To reach this total, conversion from dry farming to vineyard production would likely be required.

use or need, because of variability in farming practices. Projected agricultural demand may be higher if more land is converted from dry to irrigated farming.

4.6.3.4 Agricultural Water Demand by WPA

Table 4.15 includes a summary of the calculated existing annual applied water by WPA. The table also includes a summary of the forecast future annual applied water by WPA. All agricultural water demands have been rounded to the 10s.

Table 4.15 Agricultural Water Demand by Water Planning Area (1)

Water Planning Area		Existing Demand (AFY)	Forecast Demand	
			Low Demand (AFY)	High Demand (AFY)
1	San Simeon	70	10	60
2	Cambria	640	740	1,490
3	Cayucos	520	430	800
4	Morro Bay	2,060	1,690	2,440
5	Los Osos	3,290	2,750	3,770
6	San Luis Obispo/Avila	3,610	2,810	4,120
7(2)	South Coast	19,920	16,610	23,830
8	Huasna Valley	1,550	2,060	2,820
9	Cuyama Valley	28,870	25,240	32,410
10	Carizzo Plain	800	680	890
12	Santa Margarita	1,770	1,720	2,680
13	Atascadero/Templeton	10,620	9,740	14,600
14	Salinas/Estrella	67,610	60,740	86,820
15	Cholame Valley	80	60	80
16	Nacimiento	3,860	4,740	7,120

Notes:
1. All agricultural demand values have been rounded to the 10s. The County Crops ArcGIS® data does not include any irrigated crop acreage in WPA 11.
2. The agricultural demand for WPA 7 in this table only includes areas outside of the NCMA, NMMA, and SMVMA.

4.6.4 Rural Water Demand

Rural water demand refers to water demand in unincorporated areas of the County that are not considered agricultural or urban.

4.6.4.1 Sources of Information

The County ArcGIS® land use data, including vacant and developed properties and potential subdivisions and units in the unincorporated areas of the County, were used to calculate a rural water demand. Additional sources include information from purveyors, water management plans, and the County's 2008 Resource Management System Annual Summary Report.

4.6.4.2 Method/Assumptions: Existing and Future Rural Demand

A water duty factor was applied to the number of dwelling units (DU) of unincorporated areas that are outside the urban and agricultural areas. The water duty factor associated with rural demand is an estimated average annual volume of water used by a particular rural user and is represented as AFY/DU.

Due to different climates and types of water usage, the water duty factors can vary widely between region and time of year. The water duty factor varies with the number of persons in each DU, the amount of landscaping, and the climate. Coastal areas require less water than inland areas due to greater evapotranspiration in the inland areas and more precipitation in the coastal areas. The water duty factor for each area was determined by utilizing water usage data available through the County, adjacent counties, and water purveyors. The study calculated a range for existing and future rural demand in each region based on the amount of development and conservation.

The study utilized the County Land Use ArcGIS® layer, which includes land use and potential DU per acre for all unincorporated areas of the County. See Appendix D for a description on the methods that the County used to prepare the land use data and for a detailed discussion of how the study utilized the County Land Use ArcGIS® database. For the rural demand analysis, all areas in the County that were accounted for with urban or agricultural water demand were excluded. Existing and projected future nurseries and vineyards present in the Land Use ArcGIS® layer were merged into the agriculture ArcGIS® layer and included in the agricultural demand analysis.

The rural water demand for each area was calculated by multiplying the number of dwelling units by a water duty factor. For future rural water demand, the potential residential demand was reduced by 25 percent to account for physical and environmental constraints on development. The 25 percent is based on a future County development of 75 percent of vacant land that is designated by the County as having development potential. In the future, this could be refined for specific planning areas. The County is developing a Countywide Rural Plan that will analyze different rural build-out scenarios. The rural demand for

individual areas in the County was associated with an ArcGIS® layer, which includes the number of dwelling units, water duty factor, and calculated rural water demand for all unincorporated areas in the County that are not considered agricultural or urban. The study utilized input from the WRAC, regional, sub-regional, and other stakeholders to develop the rural water demand methodology.

4.6.4.3 Rural Water Demand by WPA

Appendix D provides a detailed discussion of the method the project used to calculate the existing and forecast future rural water demand. Table 4.16 summarizes an estimate of the existing rural demand and an estimate of the forecast future rural demand for all WPAs. According to existing County land use designations, much of the vacant rural land could be developed in the future if water and other resources were available.

Table 4.16 Existing and Future Rural Water Demand

Water Planning Area		Average Existing Rural Demand (AFY)[1]	Minimum Future Rural Demand (AFY)[2][3]	Maximum Future Rural Demand (AFY)[2]
1	San Simeon	20	50	50
2	Cambria	100	190	220
3	Cayucos	80	130	140
4	Morro Bay	120	190	220
5	Los Osos	20	20	20
6	San Luis Obispo/Avila	450	610	660
7[4]	South Coast	1,480	1,990	2,160
8	Huasna Valley	90	360	450
9	Cuyama Valley	10	80	100
10	Carizzo Plain	210	9,610	12,740
12	Santa Margarita	0	470	620
13	Atascadero/Templeton	240	450	520
14	Salinas/Estrella	1,480	1,810	1,930
15	Cholame Valley	3,590	5,570	6,230
16	Nacimiento	10	150	190

Notes:
1. Water usage factor used for all existing rural residential units in WPA 1-7 is 0.8 AFY/DU and WPA 8-16 is 1.0 AFY/DU, for commercial/industrial areas was 1.5 AFY/DU.

Table 4.16 Existing and Future Rural Water Demand			
Water Planning Area	Average Existing Rural Demand (AFY)[1]	Minimum Future Rural Demand (AFY)[2][3]	Maximum Future Rural Demand (AFY)[2]

2. Water usage factor used for all future residential units in WPA 1-7 is 0.6 AFY/DU and WPA 8-16 is 0.8 AFY/DU, for commercial/industrial areas was 1.5 AFY/DU.
3. Minimum demand represents 75 percent of potential development
4. The rural demand for WPA 7 only includes areas outside of the NCMA, NMMA, and SMVMA.

4.6.5 Environmental Demand

4.6.5.1 Definitions

Environmental water demand refers to the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes.

4.6.5.2 Method/Assumptions: Environmental Demand

A detailed discussion of the methods for determining the environmental demand is included in Appendix D. The environmental water demands were quantified for areas where data were available and unimpaired runoff data could be obtained, calculated, or estimated. The team utilized USGS and County existing stream gage data and obtained the critical stream flow data. Unimpaired runoff estimates were calculated by developing regional, multiple regression relationships that predict runoff at an ungaged, or partially gaged, location as a function of runoff at a gaged location. Once the estimated unimpaired runoff was established, the median annual discharge methodology to calculate an environmental water demand was used (Hatfield and Bruce, 2000). More detailed information on the approach is provided in the appendix.

The DWR has identified over 1,000 water rights applications and permits for San Luis Obispo County (DWR 2009b). For purposes of this analysis, the unimpaired mean annual discharge and environmental water demand is presented without including an analysis of the 1,000 diversion rights in the County. However, some of the established instream flow requirements are included. In order to obtain a better understanding of how much surface water is available for aquatic life, the District would need to identify and quantify all diversion rights and instream flow requirements in the watershed.

The mean annual discharge and environmental water demand estimates are shown in Table 4.17.

4.6.6 North Coast Sub-Region

This section describes water supply, water demand, and water quality for WPAs 1 through 4:

- San Simeon WPA 1: San Simeon CSD
- Cambria WPA 2: Cambria CSD
- Cayucos WPA 3: Cayucos Area Water Organization (Morro Rock Mutual Water Company, Paso Robles Beach Water Association, CSA 10A, Cayucos Cemetery District)
- Morro Bay WPA 4: City of Morro Bay and Chorro Valley Water System (California Men's Colony, Cuesta College, Camp San Luis Obispo, County Operations Center/Office of Education)
- Los Osos WPA 5: Community of Los Osos and vicinity (Golden State Water Company, Los Osos CSD, S&T Mutual Water Company)

The majority of existing rural parcels identified in the WPAs within the North Coast Sub-Region are classified as developed rural lands. The majority of vacant parcels in these WPAs that could be converted to rural residential in the future are vacant parcels with rural land use designations.

4.6.6.1 San Simeon WPA 1

The water supply sources for this WPA include Pico Creek Valley, San Carpoforo Valley, and Arroyo De La Cruz Valley Groundwater Basins, other groundwater supply sources, and State Water Resources Control Board (State Board) water diversions.

4.6.6.1.1 *San Simeon CSD*

Source: November 2007 Water System Master Plan and Wastewater Collection System Evaluation; Discussion with Water Committee August 2010.

Table 4.17 Mean Annual Discharge and Environmental Water Demand Estimates			
WPA No.[(1)]	**WPA Name**	**Estimated Unimpaired Mean Annual Discharge (AFY)**	**Environmental Water Demand (AFY)**
1	San Simeon	104,490	72,980
2	Cambria	87,050	51,460
3	Cayucos	33,340	26,160
4	Morro Bay	43,430	27,880
5	Los Osos	8,200	7,040
6	San Luis Obispo/Avila	45,820	33,030
7	South Coast	49,100	32,960
8	Huasna Valley	34,220	25,020
12	Santa Margarita	46,630	32,850
13	Atascadero/Templeton	74,090	41,010
16	Nacimiento	251,120(2)	108,390[(2)]

Notes:
1. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.
2. Estimates for WPA 16 environmental water demand include the watershed area for the Nacimiento River Index-station (162 square miles); though the Index-station is within WPA 16, most of the watershed area is not.

The San Simeon Community Services District (San Simeon CSD) supplies its customers with domestic water service, wastewater service, and fire protection, among other services. San Simeon is located along Highway 1 north of Cambria. The San Simeon CSD serves an area of approximately 100 acres, which includes approximately 320 residential dwelling units and over twice that number of hotel/motel units. Though the permanent residential population is estimated at 247, the tourist population can outnumber locals and varies with the season.

The build-out population is projected to reach 740 residents. The build-out population is the upper range from the San Simeon Community Plan, which assumes 530 dwelling units (DU) and 1.4 persons per DU. The commercial/retail sector constitutes over 70 percent of the annual demand. Build-out water demand is based on 3,426 gpd/acre for the non-

residential sector and 72 gallons per capita per day (gpcd) consumption for residents. Existing and forecast demand are summarized in Table 4.18.

The San Simeon CSD depends on groundwater from the Pico Creek underflow. Though the State Board permits extraction of up to 140 AFY, groundwater studies indicate a safe yield of only 120 AFY, with 16 AFY used at Hearst Ranch. This leaves the San Simeon CSD with a safe yield of 104 AFY. The 2007 Water System Master Plan does not suggest future water supply alternatives, although historically San Simeon CSD has been water-short numerous times during dryer years. Because of the limitations and unreliability of the supply, a moratorium on development has been in place since 1991.

San Simeon CSD adopted an ordinance establishing a 3-stage conservation plan based on water supply conditions. The community has also gone through a retrofit program and the hotels and restaurants continuously have water conservation measures in place. Table 4.18 summarizes the water demand and supply for San Simeon CSD.

The San Simeon CSD plans to move forward with upgrading its wastewater treatment facility to use the treated effluent as recycled water. By July 2012, the facility will be producing Title 22 recycled water, but it will only be available to commercial trucks that connect to an on-site tank. The long-term plan is to construct a recycled water distribution system. Desalination or coordination with the Hearst Ranch on a groundwater source of supply to meet build-out needs are options under consideration.

Contamination of water supply wells due to seawater intrusion is a major water quality concern in the basin (Cleath, 1986). Lowering of groundwater levels below sea level in the basin during the summer months when creek flows are absent and pumping is active can result in the landward migration of the sea water/fresh groundwater interface. The landward flow of seawater into the estuary during winter high tides is also a contributing factor. Although seawater intrusion has increased salinity levels in groundwater pumped from local water supply wells, it has not degraded water quality to the point that the water is non-potable. The 2008 Consumer Confidence Report for two San Simeon CSD wells reported that measured concentrations of all analyzed contaminants were below their respective Maximum Contaminant Level (MCL) or Regulatory Action Level (AL) values.

4.6.6.1.2 *Rural Users*

The existing rural demand for WPA 1 is approximately 20 AFY and future is approximately 50 AFY.

Table 4.18 San Simeon CSD Demand and Supply	
	San Simeon CSD
Demand	
Existing Demand (AFY)	108[1]
Forecast Demand (AFY)	250[2][3]
Supply	
Pico Creek Valley Groundwater Basin (AFY)[4]	140
San Carpoforo Valley Groundwater Basin (AFY)[5]	0
Arroyo De La Cruz Valley Groundwater Basin (AFY)	0
Other Groundwater Supply Sources (AFY)	0
State Board Water Diversions (AFY)	0
Total Supply (AFY)	**140**

Notes:
1. Demands fluctuate between 70 and 140 AFY due to changes in tourism.
2. Extensive conservation program in place. No further conservation expected at build-out by San Simeon CSD.
3. Most recent master plan forecast a build-out demand of 224 AFY, but San Simeon CSD's current build-out demand estimate is 250 AFY.
4. Estimated safe basin yield of Pico Creek underflow is 120 AFY.
5. No estimates of basin yield exist.

4.6.6.1.3 *Agricultural Users*

The existing annual applied water for WPA 1 is approximately 70 AFY. The existing crops in this area include citrus and vineyards. The projected future annual applied water for WPA 1 ranges from approximately 10 to 60 AFY. The projected future agricultural demand is less than existing, due to increased irrigation efficiencies and no additional crops in this area. Given the current land use, the demand projection for WPA 1 in particular could be refined significantly by taking ranching operations water use and conservation easement provisions into account.

4.6.6.1.4 *Environmental*

The total unimpaired mean annual discharge in WPA 1 is approximately 104,490 AFY and environmental water demand is approximately 72,980 AFY. WPA 1 was divided into eight sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for each of these areas. Some of the creeks included in these sub-watersheds include San Carpoforo, Honda Arroyo, Arroyo de la Cruz, Arroyo de la Laguna, Arroyo del Osos, Arroyo del Corral, Arroyo Laguna, and Pico Creek.

4.6.6.1.5 *San Simeon WPA 1 Water Demand and Supply Summary*

Table 4.19 San Simeon WPA 1 Demand and Supply

	San Simeon CSD	Agriculture	Rural	Environmental
Demand				
Existing Demand (AFY)	108[1]	70[2]	20[2]	
Forecast Demand (AFY)	250[3][4]	10 - 60[2]	50[2]	
Supply				
Pico Creek Valley Basin (AFY)[5]	140	[6]	[6]	
San Carpoforo Valley Basin (AFY)[7]	0	Uncertain	Uncertain	
Arroyo De La Cruz Valley Basin (AFY)	0	[8][9]	[9]	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
State Board Water Diversions (AFY)	0	[10]	[10]	
Total Supply (AFY)	**140**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)[11][13]				72,980
Unimpaired Mean Annual Discharge (AFY)[12][13]				104,490

Notes:

1. Demands fluctuate between 70 and 140 AFY due to changes in tourism.
2. Agricultural and rural demand calculations do not account for livestock operations, and likely underestimates actual water demands. For example, Hearst Holdings Inc. makes up the majority of agriculture/rural land ownership in this WPA and has submitted surface water diversion reporting forms to the SWRCB estimating 1,829 AFY of irrigation, livestock and domestic usage for their property from surface sources.
3. Extensive conservation program in place. No further conservation expected at build-out by San Simeon CSD.
4. Most recent master plan forecast a build-out demand of 224 AFY, but San Simeon CSD's current build-out demand estimate is 250 AFY.
5. Estimated safe basin yield of Pico Creek underflow is 120 AFY
6. 70 AFY of Pico Creek livestock and domestic usage was reported by Hearst Holdings Inc. to the State Board in June 2010.
7. No estimates of basin yield exist
8. 1,607 AFY of Arroyo De La Cruz Underflow is reported in the State Board diversion database as a permitted appropriative water right for Hearst Holdings Inc.
9. Estimated safe basin yield is 1,244 AFY and all pumping is for agricultural or rural users
10. Diversions from sources other than the three basins noted above total 238 AFY according to diversion reporting forms to the SWRCB from Hearst Holdings Inc. (June 2010) and the SWRCB diversion database.
11. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally

Table 4.19 San Simeon WPA 1 Demand and Supply				
	San Simeon CSD	**Agriculture**	**Rural**	**Environmental**
threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.				
12. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.				
13. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.				

4.6.6.2 Cambria WPA 2

The water supply sources for this WPA include San Simeon Valley, Santa Rosa Valley, and Villa Valley Groundwater Basins, other groundwater supply sources, and State Board water diversions.

4.6.6.2.1 *Cambria CSD*

Source: 2005 Cambria CSD Urban Water Management Plan, 2008 Water Master Plan EIR, Discussion with Engineering Manager August 2010, 2008/09 Resource Management System

The Cambria Community Services District (Cambria CSD) is an independent special district that provides water, wastewater, fire and other community services to its customers. Cambria is located is located along Highway 1, approximately 35 miles north of the City of San Luis Obispo.

Cambria's urban reserve line (URL) encompasses approximately 2,351 gross acres, with a net acreage of approximately 1,790 acres, not counting the land in the road rights of way and beach areas along the ocean. Cambria primarily consists of residential uses with combinations of commercial and public institutional uses along Main Street. The surrounding outlying areas are devoted to agricultural uses, primarily grazing.

Cambria's existing population is 6,284 residents and the build-out population ranges between 8,257 and 13,547 depending on assumptions. The current direction in Cambria is to plan for 7,719 (based on 4,650 dwelling units and 1.66 persons/DU). Existing and forecast demand are summarized in Table 4.20.

Table 4.20 Cambria CSD Demand and Supply	
	Cambria CSD
Demand	
Existing Demand (AFY)	706
Forecast Demand (AFY)	1,009 – 1,514[1]
Supply	
San Simeon Valley Groundwater Basin (AFY)[2]	1,230[4, 6]
Santa Rosa Valley Groundwater Basin (AFY)[3]	518[5, 6]
Villa Valley Groundwater Basin (AFY)	0
Other Groundwater Supply Sources (AFY)	0
State Board Water Diversions (AFY)	0
Total Supply (AFY)	**1,748**

Notes:

1. The low end of the demand range for Cambria CSD represents maintaining current conservation practices and is the lowest demand scenario from the district's water master plan. The Cambria CSD Water Master Plan presents several build-out scenarios with a range of annual demand projections from as low as 1,009 AFY to as high as 2,714 AFY. The high range of the forecast demand reflects a planning target for Scenario 4, a 50 percent quality of life increase in demand allowance and a 1.66 people/unit occupancy rate (Table 2.7, Assessment of Long-Term Water Supply Alternatives).
2. Estimated safe basin yield is 1,040 AFY
3. Estimated safe basin yield is 2,260 AFY
4. State Board allows Cambria CSD 1,230 AFY maximum extraction and 370 AF dry season extraction
5. State Board allows Cambria CSD 518 AFY maximum extraction and 260 AF dry season extraction
6. California Coastal Commission limits Cambria CSD total diversion from both San Simeon and Santa Rosa Creeks to 1,230 AFY

To meet current water demand, the Cambria CSD operates wells that draw from local groundwater aquifers along the San Simeon and Santa Rosa Creeks. Cambria CSD's water rights are subject to the regulatory authority of the State Board, and to a certain extent, conditions imposed under development permits issued by the California Coastal Commission (CCC). The current water rights diversion permits from the State Board allow Cambria CSD to pump a maximum of 1,118 acre-feet (AF) of water during the wet season, and 630 AF of water during the dry season , from both the San Simeon and Santa Rosa Valley Groundwater Basins. However, the current CCC Development Permit limits the total annual diversion from both creeks to no more than 1,230 AF of water. Additionally, the dry season date, duration, and beginning groundwater levels, limit the actual availability of groundwater from both basins. Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands.

To meet the additional water supply needs towards build-out and to increase water supply reliability, the Cambria CSD plans to construct a Seawater Desalination Plant to produce up to 602 AFY. This plant would operate during the dry season to augment supply during that period of high demand. A decentralized recycled water program is also planned, with an estimated 180 AFY made available for unrestricted irrigation use.

Historically, the Cambria CSD has used conservation as a means to extend its existing supplies. Since 1988, a plumbing retrofit program has required the installation of water efficient fixtures upon resale or remodel of a home. The program was expanded in 1990 to require water efficient fixtures for new construction and for existing buildings that require a new connection permit. Since that time, the Cambria CSD has initiated a number of other conservation measures, including rebate programs and plumbing requirements that have resulted in an estimated savings of 18.9 AFY. Table 4.21 summarizes the water demand and supply for Cambria CSD.

In 1999, the Cambria CSD learned of an MTBE contamination plume that was spreading towards its Santa Rosa well field. As a result, its existing Santa Rosa well field was shut down and an emergency well and treatment plant were constructed further upstream. The new treatment plant provides filtering, disinfection, as well as the removal of iron and manganese. The adjustments made in well locations and the additional treatment provided for the Santa Rosa Creek well have resulted in delivery of water to customers that meet both primary and secondary drinking water standards.

4.6.6.2.2 *Rural Users*

The existing rural demand for WPA 2 is approximately 100 AFY and future is approximately 190 to 220 AFY.

4.6.6.2.3 *Agricultural Users*

The existing annual applied water for WPA 2 is approximately 640 AFY. The existing crops in this area include citrus, deciduous, vegetable, and vineyards. The projected future annual applied water for WPA 2 ranges from approximately 740 to 1,490 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of all of the existing crop groups, especially vegetables and vineyards.

4.6.6.2.4 *Environmental*

The total unimpaired mean annual discharge in WPA 2 is approximately 87,050 AFY and environmental water demand is approximately 51,460 AFY. WPA 2 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for each of these areas. Creeks in these sub-watersheds include San Simeon, Santa Rosa, and Villa Creek.

4.6.6.2.5 *Cambria WPA 2 Water Demand and Supply Summary*

Table 4.21 Cambria WPA 2 Demand and Supply

	Cambria CSD	Agriculture	Rural	Environmental
Demand				
Existing Demand (AFY)	706	640	100	
Forecast Demand (AFY)	1,009 - 1,514 (1)	740 - 1,490	190 - 220	
Supply				
San Simeon Valley Basin (AFY) (2)	1,230 (4)(6)	Uncertain	Uncertain	
Santa Rosa Valley Basin (AFY)(3)	518(5)(6)	Uncertain	Uncertain	
Villa Valley Basin (AFY)	0	(7)	(7)	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
State Board Water Diversions (AFY)	0	(8)	(8)	
Total Supply (AFY)	**1,748**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY) (9)(11)				51,460
Unimpaired Mean Annual Discharge (AFY) (10)(11)				87,050

Notes:

1. The low end of the demand range for Cambria CSD represents maintaining current conservation practices and is the lowest demand scenario from the district's water master plan. The Cambria CSD Water Master Plan presents several build-out scenarios with a range of annual demand projections from as low as 1,009 AFY to as high as 2,714 AFY. The high range of the forecast demand reflects a planning target for Scenario 4, a 50% quality of life increase in demand allowance and a 1.66 people/unit occupancy rate (Table 2.7, Assessment of Long-Term Water Supply Alternatives).
2. Estimated safe basin yield is 1,040 AFY
3. Estimated safe basin yield is 2,260 AFY
4. State Board allows Cambria CSD 1,230 AFY maximum extraction and 370 AF dry season extraction
5. State Board allows Cambria CSD 518 AFY maximum extraction and 260 AF dry season extraction
6. California Coastal Commission limits Cambria CSD total diversion from both San Simeon and Santa Rosa Creeks to 1,230 AFY
7. Estimated safe basin yield is 1,000 AFY and all pumping is for agricultural or rural users
8. Diversions do not distinguish type of use. Potentially 158 AFY could be diverted for use to either

Table 4.21 Cambria WPA 2 Demand and Supply				
	Cambria CSD	**Agriculture**	**Rural**	**Environmental**
agriculture or rural residential. 9. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species. 10. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation. 11. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.				

4.6.6.3 Cayucos WPA 3

The water supply sources for this WPA include Whale Rock Reservoir, the Nacimiento Water Project, Cayucos Valley, Old Valley, and Toro Valley Groundwater Basins, other groundwater supply sources, and State Board water diversions.

4.6.6.3.1 *Cayucos Area Water Organization (Morro Rock Mutual Water Company, Paso Robles Beach Mutual Water Company, County Service Area 10A, Cayucos Cemetery District)*

Source*: 2007 Water Management Plan Update and 2003 CSA 10A Water System Master Plan*

Cayucos is a small oceanfront community with a mixture of vacation homes and full-time residences. A commercial sector serves both the residential and tourist population. The Cayucos Area Water Organization (CAWO) is made up of three member utilities and a cemetery district, the Morro Rock Mutual Water Company (Morro Rock MWC), the Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A) and Cayucos Cemetery District (CCD). CSA 10A operates a surface water treatment plant that delivers filtered and chlorinated water to the CAWO members. The three utility purveyors supply their customers with domestic water service, landscape irrigation and fire protection, among other services. The CCD uses the water for irrigation purposes. Existing and forecast demand are summarized in Table 4.22.

CAWO members receive water from Whale Rock Reservoir with a maximum total annual entitlement of 600 AFY, allocated to each member according to Table 4.22. Several wells are also available to CAWO members. The wells are primarily used as emergency back-up supplies. Most of the wells extract water from an aquifer that is replenished by recharge

Table 4.22 Cayucos Area Water Organization Demand and Supply

	Morro Rock MWC[1]	Paso Robles Beach Water Assoc.[1]	CSA 10A[1]	Cayucos Cemetery District[1]
Demand				
Existing Demand (AFY)	121	163	132	16
Forecast Demand (AFY)	164 - 173	207 - 218	220 - 232	17 - 18
Supply				
Whale Rock (Supplies Urban Demands) (AFY)	170	222	190	18
Nacimiento Water Project (2010) (AFY)[2]	0	0	25 - 90	0
Cayucos Valley Groundwater Basin (AFY)[3]	0	0	0	0
Old Valley Groundwater Basin (AFY)[4]	0	0	0	0
Toro Valley Groundwater Basin (AFY)[5]	0	0	0	0
Other Groundwater Supply Sources (AFY)	0	0	0	0
State Board Water Diversions (AFY)	3[6]	0	0	0
Total Supply (AFY)	**173**	**222**	**215 - 280**	**18**

Notes:

1. The Cayucos Area Water Organization includes the Morro Rock MWC, the Paso Robles Beach Water Association, CSA 10A, and the Cayucos Cemetery District. The low end of the forecast demand range assumes 5% additional conservation (beyond what has already been accomplished) at build-out.
2. CSA 10A has procured 25 - 90 AFY of Nacimiento Water Project from City of San Luis Obispo. Water will be taken from Whale Rock. Agreement provisions allow for up to 90 AFY of NWP if necessary. Nacimiento water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association, as part of this arrangement.
3. Estimated safe basin yield is 600 AFY and the majority of pumping is for agricultural or rural users, but a small public water system does serve a mobile home park.
4. Includes Whale Rock Reservoir. Most of the wells extract water that is replenished by recharge from Whale Rock Reservoir. Water drawn from these wells is also limited by the 664 AFY entitlement from Whale Rock Reservoir. Note that CAWO agencies receive water directly from the reservoir via pipeline and the treatment plant.
5. Estimated safe basin yield is 500 AFY and the majority of pumping is for agricultural or rural users
6. Only 3 AFY is diverted for a school and park irrigation, but up to 56 AFY is the permitted diversion from Little Cayucos Creek underflow. 56 AFY is part of the 600 AFY safe basin yield for the Cayucos Valley Basin. Due to water quality, the remaining 53 AFY could be used for domestic supply following treatment.

from Old Creek and Whale Rock Reservoir. Water drawn from these wells is also limited by the 600 AFY entitlement from the Whale Rock Reservoir. One Morro Rock MWC well draws from Little Cayucos Creek Valley and is not subject to this limitation. In addition to these agencies, Whale Rock Reservoir water entitlements are assigned to two downstream land owners (Mainini Ranch at 50 AFY and Ogle at 14 AFY). Therefore, the total reservoir entitlement to CAWO and the land owners is 664 AFY.

CSA 10A has procured an additional entitlement of 25 AFY through the Nacimiento Water Project. This water will be taken from the Whale Rock Reservoir in an exchange agreement with the City of San Luis Obispo. The agreement allows up to 90 AFY to be exchanged, which may be a way to address any future needs of the CAWO.

Aluminum has occasionally been found in delivered water at levels that exceed the secondary MCL of 200 ppb. The high aluminum levels are due to residue from the water treatment process. Better control of the treatment process has resulted in lower levels of aluminum in recent water quality tests. Manganese has been found in raw water from the CAWO well at levels that exceed the secondary MCL of 50 ppb. Since this well contributes less than one percent of the total supply, manganese is not detectable in delivered water.

4.6.6.3.2 *Rural Users*

The existing rural demand for WPA 3 is approximately 80 AFY and future range is from approximately 130 to 140 AFY.

4.6.6.3.3 *Agricultural Users*

The existing annual applied water for WPA 3 is approximately 520 AFY. The existing crops in this area include citrus, vegetables, and vineyards. The projected future annual applied water for WPA 3 ranges from approximately 430 to 800 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, vegetables, and vineyards.

4.6.6.3.4 *Environmental*

For WPA 3, the total unimpaired mean annual discharge is approximately 33,340 AFY and environmental water demand is approximately 26,160 AFY. WPA 3 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for each of these areas. Creeks in these sub-watersheds include Cayucos and Toro Creek.

4.6.6.3.5 *Cayucos WPA 3 Water Demand and Supply Summary*

Table 4.23 Cayucos WPA 3 Supply and Demand

	Morro Rock MWC[1]	Paso Robles Beach Water Association[1]	CSA 10A[1]	Cayucos Cemetery District[1]	Agriculture	Rural	Environmental
Demand							
Existing Demand (AFY)	121	163	132	16	520	80	
Forecast Demand (AFY)	164-173	207-218	220-232	17-18	430-800	130-140	
Supply							
Whale Rock (Supplies Urban Demands) (AFY)	170	222	190	18	0	0	
Whale Rock (Supplies Mainini Ranch and Ogle) (AFY)	-	-	-	-	64	0	
Nacimiento Water Project (2010) (AFY)[2]	0	0	25-90	0	0	0	
Cayucos Valley Basin (AFY)	0	0	0	0	[3]	[3]	
Old Valley Basin (AFY)[4]	-	-	-	-	-	-	
Toro Valley Basin (AFY)	0	0	0	0	[5]	[5]	
Other Groundwater Supply Sources (AFY)	0	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	3[6]	0	0	0	[7]	[7]	
Total Supply (AFY)	**173**	**222**	**215-280**	**18**	**Uncertain**	**Uncertain**	
Environmental Water Demand							
Environmental Water Demand (AFY)[8][10]							26,160
Unimpaired Mean Annual Discharge (AFY)[9][11]							33,340

Notes:
1. The Cayucos Area Water Organization includes the Morro Rock MWC, the Paso Robles Beach Water Association, CSA 10A, and the Cayucos Cemetery District. The low end of the forecast demand range assumes 5% additional conservation (beyond what has already been accomplished) at build-out.
2. CSA 10A has procured 25 - 90 AFY of Nacimiento Water Project via exchange with City of San Luis Obispo for Whale Rock Reservoir water. Agreement provisions allow for up to 90 AFY of NWP if necessary. Nacimiento water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association, as part of this arrangement.
3. Estimated safe basin yield is 600 AFY and the majority of pumping is for agricultural or rural users, but a small public water system does serve a mobile home park.
4. Includes Whale Rock Reservoir. Most of the wells extract water that is replenished by recharge from Whale Rock Reservoir. Water drawn from these wells is also limited by the 664 AFY entitlement from Whale Rock Reservoir. Note that CAWO agencies receive water directly from the reservoir via pipeline and the treatment plant.
5. Estimated safe basin yield is 500 AFY and the majority of pumping is for agricultural or rural users
6. Only 3 AFY is diverted for a school and park irrigation, but up to 56 AFY is the permitted diversion from Little Cayucos Creek underflow. 56 AFY is part of the 600 AFY safe basin yield for the Cayucos Valley Basin. Due to water quality, the remaining 53 AFY could be used for domestic supply following treatment.
7. Diversions do not distinguish type of use. Potentially 65 AFY could be diverted for use to either agriculture or rural residential.
8. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
9. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
10. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.6.6.4 Morro Bay WPA 4

The water supply sources for this WPA include State Water Project water, desalination, Whale Rock Reservoir, Chorro Reservoir, Morro Valley and Chorro Valley Groundwater Basins, other groundwater supply sources, and State Board water diversions.

4.6.6.4.1 *City of Morro Bay*

Source*: City of Morro Bay 2005 UWMP and 2007 Morro Bay Nitrate Study*

The City of Morro Bay provides water service to over 5,500 connections, including over 10,000 residents, businesses, industrial facilities, and public facilities. The population estimate in 2005 was 10,270 according to the 2005 Urban Water Management Plan (2005 UWMP). Its coastal location attracts a large number of tourists during the summer and on weekends. The motels, hotels, restaurants, State Parks, and other facilities serving the tourist population add a significant water demand to the local population living primarily in single-family residences. The 2005 UWMP assumed a build-out population of 12,900, estimated to be achieved in 2028. The existing and forecast demand are summarized in Table 4.24.

The City has multiple sources of potable water. Two groundwater basins, the Chorro and Morro Valley Groundwater Basins, were used exclusively prior to the City's connection to the State Water Project. The City also operates a desalination plant and has mutual aid agreements with the California Men's Colony and the Whale Rock Commission for emergency supply.

The groundwater basins have encountered several water quality issues, including seawater intrusion, methyl tertiary butyl ether (MTBE) contamination, and excessive nitrates, forcing the City of Morro Bay to reduce extraction from groundwater sources. In addition, the State Board permitted allocation allows withdrawals from the Chorro Basin only when creek flows exceed 1.4 cubic feet per second (cfs). Nevertheless, strategic management of these sources should allow the City of Morro Bay to reliably extract 581 AFY from the Morro Basin and 566 AFY from the wells that penetrate the Chorro Basin, for a total of 1,147 AFY, even in dry years.

The City contracts with the District for 1,313 AFY of State Water. The City also has a Drought Buffer Water Agreement with the District for 2,290 AFY that will allow the City to receive its full 1,313 AFY allocation when the SWP can deliver at least 36.5 percent of contracted allocations (see SWP discussion). The City has been noted as being potentially interested in an additional 750 AFY of State Water and 1,500 AFY of Drought Buffer, should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

The SWP shuts down for annual maintenance activities each fall/winter during which the City has used its alternative supplies. In 2008, the SWP shutdown took place when

groundwater quality issues were limiting the City's use of well water. The shortfall was made up for through an agreement with the California Men's Colony to provide the City with water during that period.

The desalination plant was constructed in 1993 as a secondary supply during a drought. It has been used intermittently since that time, but raw water quality problems have limited its use. Plans to modernize the desalination plant should restore capacity to 645 AFY. Future needs could be met by doubling the desalination plant's capacity.

Other potential future supplies include the jointly operated Morro Bay - Cayucos Sanitary District Wastewater Treatment Plant. The plant is slated for a major upgrade in 2014. Production of tertiary effluent will be provided, and thus will provide increased opportunity for future water recycling to augment water supplies.

Since the early 1990s, the City has implemented a rigorous water conservation program to promote more efficient use of existing water resources. The City is a member of the County's Partners in Water Conservation. The water conservation program has had a significant impact, reducing average per capita water demand from 154 to about 129 gpcd (141 gpcd in dry years) or 8 to 16 percent. As noted in the City's 2005 Sewer Collection System Master Plan Update, flows in 2005 were lower than in 1986, even with a 10 percent increase in population.

Elements of the conservation program include:

- Progressively tiered water rate structure
- Creation of a developer funded low-flow toilet retrofit program
- Adoption of multi-level drought response program with increasing limits on irrigation and non-essential uses of potable water
- Promotion of many of the Water Conservation BMPs to be pursued by all contractors of the State Water Project, including an ongoing rebate program for homeowner installation of water-efficient appliances.

As mentioned above, groundwater quality issues are an ongoing concern, but the City's ability to obtain water from multiple sources and to blend them as needed to meet State drinking water standards has lessened the concerns that water quality issues could hamper the City from meeting future water demands.

4.6.6.4.2 *Chorro Valley Water System (California Men's Colony, Cuesta College Camp SLO (National Guard) County Operations Center/Office of Education)*

The California Men's Colony (CMC) is a state prison located on Highway 1 west of San Luis Obispo. The CMC operates its own water supply, treatment and distribution system for inmates and staff. CMC also wheels water to Camp San Luis Obispo (National Guard), Cuesta College, County Operations Center (includes Fleet Services, Water Quality

Laboratory, Juvenile Detention Center, County Jail, Office of Emergency Services), and County Office of Education. This system is also known as the Chorro Valley Water System. Existing and forecast demand are summarized in Table 4.24.

The CMC water system serves an inmate and staff population of 8,456. No expansion of this service population is planned, though a reduction in staff and inmate population is currently being considered by the legislature. Cuesta College can service up to 6,500 students; however, on any given day, it is estimated that student/faculty population is around 1,500. Camp San Luis Obispo's total population/employees on base was not available.

Table 4.24 summarizes the water demands for CMC, Camp San Luis Obispo, Cuesta College and County Operations Center/Office of Education. Other minor water demands for the fire station, Achievement House and Foster Ranch (6.22 AFY in total) are excluded from the individual summaries below.

CMC operates a 3.0 MGD water treatment facility at the Chorro Reservoir, and delivers water to Camp San Luis Obispo, Cuesta College, and County Operations Center/Office of Education. These entities receive water from three sources (and a fourth source for emergencies), as follows:

- Chorro Reservoir: This reservoir is located less than one mile northeast of CMC in the upper Chorro watershed. The reservoir and treatment plant were constructed by the US Army Corps of Engineers to provide water to Camp San Luis Obispo at the beginning of World War II. The net storage capacity of Chorro Reservoir has decreased since it was constructed due to sedimentation, and is currently about 90 AF, according to recent studies. Camp San Luis Obispo holds the first 140 AFY entitlement to this surface water; during surplus water years, any excess to the 140 AFY is used by CMC. Flow must be maintained in Chorro Creek downstream of the reservoir for riparian habitat enhancement.
- Whale Rock Reservoir: CMC is one of three owners (Cal Poly and the City of San Luis Obispo are the others) holding a partial entitlement to Whale Rock Reservoir. CMC owns an 11.24 percent share of the reservoir's capacity, which allows them to withdraw approximately 420 AFY. Raw lake water is pumped from Whale Rock Reservoir in Cayucos via a 30-inch diameter steel water main to the three owners. CMC's turnout delivers water to the CMC water treatment plant for treatment, prior to distribution.
- State Water: CMC contracts with the District for 400 AFY of State Water. CMC also has a Drought Buffer Water Agreement with the District for 400 AFY that will allow CMC to receive its 400 AFY allocation when the SWP can deliver at least 50 percent of contracted allocations (see State Water Project discussion). Cuesta College contracts with the District for 200 AFY of State Water and 200 AFY of Drought Buffer; however, CMC receives 60 AFY of this 200 AFY allocation per agreement for

Table 4.24 Morro Bay and Chorro Valley Water Demand and Supply

	Morro Bay	CMC[2]	Camp San Luis Obispo (National Guard)[2]	County Operations Center/Office of Education[2]	Cuesta College[2]
Demand					
Existing Demand (AFY)	1,620[1]	1,135	138	94	125
Forecast Demand (AFY)	2,040[1]	1,135	138	94	125
Supply					
State Water Project (AFY)[3]	1,313	735[4]	0	150[4]	140[4]
Desalination Plant (AFY)	645	0	0	0	0
Whale Rock Reservoir (AFY)	0[5]	420	0	25[6]	0
Chorro Reservoir (AFY)	0	25[7]	140	0	0
Morro Valley Basin (AFY)[8]	581	0	0	0	0
Chorro Valley Basin (AFY)[9]	566	0	200[10]	0	0
Other Groundwater Supply Sources (AFY)	0	0	0	0	0
Recycled Water (AFY)	0	0	0	0	0
SWRCB Water Diversions (AFY)	0	0	0	3	0
Total Supply (AFY)	**3,105**	**1,180**	**340**	**178**	**140**

Notes:
1. Water demands based on the 2005 Urban Water Management Plan (UWMP), which will be updated for the 2010 UWMP. Year 2009 demands were less than 1,620 AFY.
2. Part of Chorro Valley Water System.
3. State Water Project average allocation assumed 66 percent of contract water service amount.
4. CMC receives 60 AFY of Cuesta College 200 AFY allocation. County Operations Center provides up to 275 AFY from their 425 AFY State Water Project allocation to CMC. Totals in table reflect these agreements.
5. Mutual aid agreements with CMC and Whale Rock Commission for emergency supply only.

Table 4.24 Morro Bay and Chorro Valley Water Demand and Supply					
	Morro Bay	**CMC[2]**	**Camp San Luis Obispo (National Guard)[2]**	**County Operations Center/Office of Education[2]**	**Cuesta College[2]**
6. 25 AFY of Whale Rock water provided by CMC as part of the County Well No. 1 development agreement. 7. Rights to any Chorro Reservoir excess from Camp San Luis Obispo. 8. Estimated safe basin yield is 1,500 AFY and the groundwater is used by urban, agriculture and rural users. 9. Perennial yield estimated at 2,210 AFY and the groundwater is used by urban, agriculture and rural users. 10. County Well No. 1.					

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wheeling the water to Cuesta College. The County Operations Center/Office of Education has a 425 AFY allocation of State Water and a 425 AFY allocation of Drought Buffer. The County Operations Center never fully utilizes this allocation, so CMC utilizes the excess State Water allocation per agreement. This study assumes that the County Operations Center receives 150 AFY and that CMC receives 275 AFY of the 425 AFY allocation.

- Groundwater Wells: CMC is in the process of rehabilitating an on-site well (County Well No. 1). Once rehabilitated, this well water source will be allocated to Camp San Luis Obispo; however, the water quality is such that it will be conveyed to the CMC water treatment plant, treated, and wheeled back to Camp San Luis Obispo for use.
- Salinas Reservoir Waterline: The Salinas Reservoir waterline was extended from the Cuesta Water Tunnel to the Chorro Reservoir as part of the original improvements in World War II. The pipeline has only been used to convey water from the Salinas Reservoir to Camp San Luis Obispo twice since construction.

The following summarizes the pertinent water related agreements between the various agencies.

- CMC/Cuesta College: CMC and Cuesta College entered into agreement on June 19, 2000, for water supply and wastewater treatment services. The term of this contract is indefinite. As indicated above, Cuesta College has a 200 AFY SWP allocation; however, CMC at this time utilizes 60 AFY of this allocation. Cuesta's allocation includes 200 AFY drought buffer. Furthermore, in the event State Water is not available, CMC is obligated to supply Cuesta with "replacement" water in an amount equal to Cuesta's allocation of 200 AFY (not including the 60 AFY currently being utilized by CMC).
- CMC/Camp San Luis Obispo: CMC agrees to process water at no cost to Camp San Luis Obispo. Camp San Luis Obispo has first rights to water from County Well No. 1. In exchange, Camp San Luis Obispo provides 25 AFY of Chorro Reservoir entitlement to CMC and CMC has free use of Camp San Luis Obispo hospital and firing range.
- CMC/County Operations Center: County Operations Center provides up to 275 AFY from its 425 AFY of State Water in exchange for wheeling the remaining 150 AFY. If the County Operations Center provides less than 275 AF, it will reimburse CMC for a pro rata share of potable water wheeling and capital improvement costs to the WWTP. If CMC uses more than 275 AFY from the County Operations Center, CMC will reimburse the County for variable costs of excess State Water used. The County Operations Center will fund any needed improvements to CMC operated facilities if CMC wheels more than 150 AFY.
- County Operations Center/State (CMC and Camp San Luis Obispo): Allows the State (CMC) to develop and pump from County Well No. 1. CMC will provide the County

Operations Center 25 AFY after well is developed. CMC and the County Operations Center will share pumped water equally after CMC uses first 150 AFY. Water provided to the County by CMC will be Whale Rock Water. State may terminate agreement if well production is below 100 AFY or well water quality cannot be used. The County Operations Center may terminate agreement if State uses water for new non-government purposes.

The CMC wastewater treatment facility, located southwest of the Cuesta College Campus, treats wastewater from CMC, Camp San Luis Obispo, Cuesta College, and the County Operations Center. Currently, the WWTP provides up to 275 AFY of tertiary treated effluent to the Dairy Creek Golf Course, owned and operated by the County of San Luis Obispo. Recycled water is also used to provide a minimum flow of 0.75 cfs in Chorro Creek for riparian habitat enhancement.

CMC is considering participation in the Nacimiento Water Project. CMC has contacted the District requesting from 200 AFY to 400 AFY of Nacimiento Water for future supply reliability and minor demand increases. Such allocation is available; however, it is uncertain at this time if they will participate due to costs and other factors. CMC has also expressed interest in any State Water that may become available.

CMC delivers excellent quality drinking water to its customers, from the three surface water supplies (Whale Rock, State Water, and Chorro Reservoir). Water consistently meets all primary drinking water standards, and levels of nitrates are very low (<2.3 mg/L). Total dissolved solids ranged from 357 to 440 mg/L, with an average of 389 mg/L.

4.6.6.4.3 *Rural Users*

The existing rural demand for WPA 4 is approximately 120 AFY and projected future range is from 190 to 220 AFY.

4.6.6.4.4 *Agricultural Users*

The existing annual applied water for WPA 4 is approximately 2,060 AFY. The existing crops in this area include citrus, irrigated pasture, vegetable, and vineyards. The projected future annual applied water for WPA 4 ranges from approximately 1,690 to 2,440 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, vegetables, and vineyards.

4.6.6.4.5 *Environmental*

The unimpaired mean annual discharge for WPA 4 is approximately 43,430 AFY and environmental water demand is approximately 27,880 AFY. WPA 4 was divided into two sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. Creeks in these sub-watersheds include Morro and Chorro Creek.

4.6.6.4.6 *Morro Bay WPA 4 Water Demand and Supply Summary*

Table 4.25 Morro Bay WPA 4 Supply and Demand

	Morro Bay	CMC[2]	Camp San Luis Obispo (National Guard)[2]	County Operations Center/Office of Education[2]	Cuesta College[2]	Agriculture	Rural	Environmental
Demand								
Existing Demand (AFY)	1,620[1]	1,135	138	94	125	2,060	120	
Forecast Demand (AFY)	2,040[1]	1,135	138	94	125	1,690 - 2,440	190 - 220	
Supply								
State Water Project (AFY)[3]	1,313	735[4]	0	150[4]	140[4]	0	0	
Desalination Plant (AFY)	645	0	0	0	0	0	0	
Whale Rock Reservoir (AFY)	0[5]	420	0	25[6]	0	0	0	
Chorro Reservoir (AFY)	0	25[7]	140	0	0	25[8]	0	
Morro Valley Basin (AFY)[9]	581	0	0	0	0	Uncertain[9]	Uncertain[9]	
Chorro Valley Basin (AFY)[10]	566	0	200[11]	0	0	Uncertain[10]	Uncertain[10]	
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	Uncertain	Uncertain	
Recycled Water (AFY)	0	0	0	0	0	0	275[12]	
SWRCB Water Diversions (AFY)	0	0	0	3	0	[13]	[13]	
Total Supply (AFY)	**3,105**	**1,180**	**340**	**178**	**140**	**Uncertain**	**Uncertain**	
Environmental Water Demand								
Environmental Water Demand (AFY)[14][16]								27,880
Unimpaired Mean Annual Discharge (AFY)[15][16]								43,430

Notes:
1. Water demands based on the 2005 Urban Water Management Plan (UWMP), which will be updated for the 2010 UWMP. Year 2009 demands were less than 1,620 AFY.
2. Part of Chorro Valley Water System.
3. State Water Project average allocation assumed 66 percent of contract water service amount.
4. CMC receives 60 AFY of Cuesta College 200 AFY allocation. County Operations Center provides up to 275 AFY from their 425 AFY State Water Project allocation to CMC. Totals in table reflect these agreements.
5. Mutual aid agreements with CMC and Whale Rock Commission for emergency supply only.
6. 25 AFY of Whale Rock water provided by CMC as part of the County Well No. 1 development agreement.
7. Rights to any Chorro Reservoir excess from Camp San Luis Obispo.
8. Mainini Ranch has agreement with Camp San Luis Obispo for a delivery of up to 25 AFY.
9. Estimated safe basin yield is 1,500 AFY and the groundwater is used by urban, agriculture and rural users.
10. Perennial yield estimated at 2,210 AFY and the groundwater is used by urban, agriculture and rural users.
11. County Well No. 1.
12. Dairy Creek Golf Course owned and operated by the County of San Luis Obispo.
13. Diversions do not distinguish type of use. Potentially 475 AFY could be diverted for use to either agriculture or rural residential.
14. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
15. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
16. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.6.6.5 Los Osos WPA 5

The water supply source for this WPA is the Los Osos Valley Groundwater Basin and State Board water diversions.

4.6.6.5.1 *Community of Los Osos (Los Osos CSD, Golden State Water Company, S&T Mutual Water Company)*

Source: 2002 Los Osos CSD Water Master Plan, GSWC files, 2009 CHG groundwater studies, Sea Water Intrusion in the Los Osos Groundwater Basin (presentation to Regional Water Quality Control Board), and the Interlocutory Stipulated Judgment (ISJ) Working Group's May 4, 2010 Los Osos Groundwater Basin Update

The community of Los Osos lies within the unincorporated coastal area of San Luis Obispo County, just south of the City of Morro Bay. Los Osos is bordered on the northwest by the Morro Bay Estuary and Morro Bay State Park; to the east by Los Osos Creek and its riparian corridor; and to the south and southwest by the Irish Hills and Montana de Oro State Park. The Los Osos Valley lies to the east of the community.

The community of Los Osos has been subject to a building moratorium since 1988, which has resulted in only limited development since that time. Upon completion of the wastewater project by the County, the moratorium may be lifted (subject to other resource issues such as water supply and habitat conservation).

The following three water purveyors serve the community of Los Osos:

- Los Osos Community Services District (Los Osos CSD)
- S & T Mutual Water Company (S&T MWC)
- Golden State Water Company (GSWC)

Los Osos consists of a mix of residential, commercial, agriculture, and recreational areas. Table 4.26, taken from various sources shows existing and future populations/connections in the service areas. Build-out projections for the GSWC service area have been revised in its updated Master Plan prepared in 2007. The revised plan projects that once the building moratorium is lifted, the number of water service connections will increase from 2,648 in 2006 to 4,381 by 2030.

Table 4.26 Population Estimates and Connection Data for Urban Water Purveyors (2002 Los Osos CSD WMP, 2009 RMS, and GSWC Files)		
Purveyor Name	**Existing (2008) Population**	**Build-out Population**
Los Osos CSD Water Service Area	8,500	9,324
S&T Mutual Water Company	525	535
	Existing (2006) Connections	**Build-out Connections**
GSWC Service Area	2,648	4,381

Existing and forecast demand are summarized in Table 4.27. The sole source of water for the Los Osos has been its groundwater basin. The Los Osos Valley Ground Water Basin under existing conditions, with existing septic systems in place and assuming no new water development, is estimated to have a safe basin yield of 3,200 AFY. This source is shared by the three water purveyors and many overlying private well users in the valley. After subtracting 1,100 AFY in agricultural irrigation, private domestic use and golf course irrigation, the purveyors have available for their use an estimated 2,100 AFY of sustainable safe yield.

Through the development of a basin management plan, one goal of the ISJ Working Group is to "provide for a continuously updated hydrologic assessment of the Basin, its water resources and safe yield." The ISJ Working Group will be evaluating and identifying the management strategies to implement, in coordination with the County's wastewater project, to improve conditions in the groundwater basin. Strategies under consideration include additional conservation, well relocation, use of shallow wells, nitrate removal, rainwater harvesting and graywater systems.

The County Planning Department has implemented an indoor retrofit-upon-sale program as a result of the County Board of Supervisors certifying a Level of Severity III for the groundwater basin. A mandatory fixture replacement program, which is part of the wastewater treatment facility project, will replace all toilets and urinals in the wastewater service area (also known as the "Prohibition Zone") with low-flow devices. This action could reduce overall water consumption by 20 to 25 percent, with similar reductions expected in wastewater flows. The objective of fixture replacement program is to reduce indoor water use to 50 gallons per capita per day within the wastewater service area.

GSWC promotes conservation by providing free water conservation kits to all customers. Their outreach program is highlighted by an educational series explaining the "Five Golden

Table 4.27 Los Osos Area Demand and Supply

	Los Osos CSD	S&T MWC	Golden State Water Co.
Demand			
Existing Demand (AFY)	951	94	998
Forecast Demand (AFY)	835-1,044[1]	77-96[1]	1,384-1,730[1]
Supply			
Los Osos Valley Basin (AFY)	[2]	[2]	[2]
Other Groundwater Supply Sources (AFY)	0	0	0
SWRCB Water Diversions (AFY)	0	0	0
Total Supply (AFY)	[2]	[2]	[2]

Notes:
1. The low end of the forecast demand range assumes 20 percent additional conservation (beyond what has already been accomplished) at build-out of current general plan.
2. Estimated safe basin yield is 3,200 AFY and all pumping is for urban, agricultural or rural users. Purveyors have 2,100 AFY available for their use. The remaining 1,100 AFY is used for agricultural irrigation, private domestic use, and golf course irrigation. (Los Osos Groundwater Basin Update, ISJ Working Group, May 4, 2010).

Rules" for water conservation, a series of video vignettes that explain simple ways that consumers can conserve water at home. GSWC also has a full-time Water Use Efficiency Manager and is a member of the California Urban Water Conservation Council (CUWCC).

Los Osos CSD is a member of San Luis Obispo County's Partners in Water Conservation. In addition, the District employs many of the Best Management Practices (BMPs) established by the CUWCC. Some of these BMPs worth mentioning include: offering free plumbing retrofit kits, providing public information, participating in grade school education programs, conducting water audits, and pricing water using a tiered rate structure.

Over the past three decades, Los Osos groundwater has been the focus of a number of studies. The main water quality concerns in the basin are nitrate and sea water intrusion. Excessive levels of nitrate in upper levels of the groundwater system have been attributed to the high density of individual septic systems. The Regional Water Quality Control Board (Regional Board) placed a development moratorium on the community until a centralized wastewater treatment plant could be built. As these individual systems are replaced with a centralized wastewater treatment system, it is expected that nitrate levels in groundwater will decrease over the next few decades. In the meantime, purveyors have reduced pumping from the upper (contaminated) aquifer and have drawn increasing amounts from

lower aquifers to deliver water suitable for drinking. Seawater intrusion, however, continues to be a growing concern, with the average horizontal rate of intrusion between 2005 and 2010, based on the 250 mg/L isochlor, being 700 feet per year.

4.6.6.5.2 *Rural Users*

The existing rural demand for WPA 5 is 20 AFY and projected future demand is approximately the same. The majority of WPA 5 is composed of agricultural and urban areas, so there are only a small number of parcels in WPA 5 where there could be additional rural development.

4.6.6.5.3 *Agricultural Users*

The existing annual applied water for WPA 5 is approximately 3,290 AFY. The existing crops in this area include deciduous, nursery, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 5 ranges from approximately 2,750 to 3,770 AFY. The existing annual applied water falls within the range of projected future agricultural demand.

4.6.6.5.4 *Environmental*

The unimpaired mean annual discharge for WPA 5 is approximately 8,200 AFY and environmental water demand is approximately 7,040 AFY. The analysis for WPA 5 analyzed the area as one watershed that includes Los Osos Creek and an area of approximately 23 square miles.

4.6.6.5.5 *Los Osos WPA 5 Water Demand and Supply Summary*

Table 4.28 Los Osos WPA 5 Demand and Supply

	Los Osos CSD	S&T MWC	Golden State Water Company	Agriculture	Rural	Environmental
Demand						
Existing Demand (AFY)	951	94	998	3,290	20	
Forecast Demand (AFY)	835-1,044[1]	77-96[1]	1,384-1,730[1]	2,750-3,770	20	
Supply						
Los Osos Valley Basin (AFY)	[2]	[2]	[2]	[2]	[2]	
Other Groundwater Supply Sources (AFY)	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	[3]	[3]	
Total Supply (AFY)	[2]	[2]	[2]	[2]	[2]	
Environmental Water Demand						
Environmental Water Demand (AFY)[4][6]						7,040
Unimpaired Mean Annual Discharge (AFY)[5][6]						8,200

Notes:

1. The low end of the forecast demand range assumes 20 percent additional conservation (beyond what has already been accomplished) at build-out of current general plan.
2. Estimated safe basin yield is 3,200 AFY and all pumping is for urban, agricultural or rural users. Purveyors have 2,100 AFY available for their use. The remaining 1,100 AFY is used for agricultural irrigation, private domestic use, and golf course irrigation (Los Osos Groundwater Basin Update, ISJ Working Group, May 4, 2010).
3. Diversions do not distinguish type of use. Potentially 46 AFY could be diverted for use to either agriculture or rural residential.
4. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
5. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
6. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.6.7 South Coast Sub-Region

This section describes water supply, water demand, and water quality for WPAs 6 through 9:

- San Luis Obispo/Avila WPA 6: City of San Luis Obispo (includes County airport), Cal Poly San Luis Obispo, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, CSA 12, and Port San Luis
- South Coast WPA 7: Golden State Water Company (Edna Valley), NCMA (Pismo Beach, Arroyo Grande, Grover Beach, Oceano CSD), NMMA (Golden State Water Company, Nipomo CSD, Rural Water Company, Woodlands MWC, ConocoPhillips), and SMVMA
- Huasna Valley WPA 8: Overlying users
- Cuyama Valley WPA 9: Overlying users

The majority of existing rural parcels identified in South Coast Sub-Region are classified as developed rural residential, rural suburban, or developed rural lands. The majority of vacant parcels could be converted to rural residential in the future with rural land use designations.

4.6.7.1 San Luis Obispo/Avila WPA 6

The water supply sources for this WPA include the State Water Project, Whale Rock Reservoir, Salinas Reservoir, Nacimiento Water Project, Lopez Lake Reservoir, San Luis Valley, Avila Valley and other groundwater basins, recycled water, and State Board water diversions.

4.6.7.1.1 *City of San Luis Obispo (includes County Airport)*

Source: 2005 City of SLO UWMP, 2009 Water Resources Status Report and City of San Luis Obispo 2010 General Plan Update, Chapter 8

The City of San Luis Obispo is located in a coastal valley approximately 10 miles inland from the Pacific Ocean. Historically, the City of San Luis Obispo has been the sole water purveyor within the its limits. This allowed the city to maintain uniformity of water service and distribution standards, and to be consistent in developing and implementing water policy. The City also serves the County Regional Airport and Cal Poly. Since Cal Poly has its own allocation of water from the Whale Rock Reservoir and has water resources that do not pass through the City's treatment plant, the University is discussed separately.

The City of San Luis Obispo has an existing (2010) population of 44,948 and a one percent residential growth cap which assists in projecting future annual water needs. The current General Plan estimates that the build-out population for the City will be approximately 57,200 people. The City's existing and forecast water demand are summarized in Table 4.29.

The City accounts for its water supplies by designating a portion of what is available for primary supply, reliability reserve and secondary supply. Primary supply is the average supply needed to meet build-out needs. Reliability reserve is a 20 percent buffer for future unforeseen or unpredictable long-term impacts to the City's available water resources such as loss of yield from an existing water supply source and impacts due to climate change. Secondary supply is the additional amount needed to supplement the primary and reliability supply to meet needs during short-term water supply shortages or peak demands.

The City of San Luis Obispo currently receives water from four sources; Salinas Reservoir (Santa Margarita Lake), Whale Rock Reservoir, local groundwater, and recycled water from the Water Reclamation Facility. The City has depended on imported supplies from Salinas Reservoir, located near the community of Santa Margarita, since 1944 and Whale Rock Reservoir, located near the community of Cayucos, since 1961. Whale Rock Reservoir provides water to the City of San Luis Obispo, California Poly, and the CMC as well as the members of CAWO in Cayucos. The safe yield from the Salinas and Whale Rock Reservoirs was 6,940 AFY in 2010, but siltation causes the yield to drop by approximately 10 AFY.

As a result of the onset of the drought in 1986, which lead to decreases in surface water supplies, the City activated its groundwater sources in 1989. The City currently uses a small amount of groundwater (~2 percent of total) for potable purposes, but does not count groundwater yield in its water supply portfolio. Even though the estimated safe yield of the basin is 2,000 AFY, nitrate and PCE contamination and drought make groundwater a less than reliable source.

The City of San Luis Obispo's Water Reclamation Facility (WRF) currently receives approximately 4.5 mgd (5,040 AFY) wastewater flows. The WRF provides tertiary treated effluent to an extensive recycled water distribution system that delivers recycled water to a number of customers in the southern area of the City, including Damon Garcia Sports Park, Laguna Golf Course, Laguna Middle School, Laguna Lake Park, and commercial centers such as Irish Hills Plaza. Currently, recycled water irrigation demand is 130 AFY, and the City anticipates customer demands to expand by 10 AFY to an anticipated maximum of 1,000 AFY. The City must also maintain stream flow to San Luis Obispo Creek, at a minimum average daily flow of 2.5 cfs (1.6 mgd, or 1,800 AFY). Effluent TDS quality of the recycled water is approximately 900 mg/L.

Future water sources include the Nacimiento Water Project, which is scheduled to go online in 2010/11, will supply up to 3,380 AFY to the City of San Luis Obispo. The City's Water Reclamation Facility will deliver up to 1,000 AFY of recycled water for irrigation and other approved uses. The tertiary recycled water is suitable for most uses other than swimming and drinking.

In June 1985, the City Council adopted the Annual Water Operational Plan policy, which established a procedure to monitor the City's water supply situation on an annual basis. An

integral component of the policy was the establishment of a water demand management or conservation program aimed at instituting corrective measures ahead of any projected water supply deficit to maintain a dependable supply during critically dry periods. Water demand management has played an ever increasing role in the overall water supply development and management strategies since 1985. In 1990, the City adopted a multi-source water policy in an attempt to solve both short term water shortages and meet the City's long-term water needs.

The goal of the City's water conservation program is to make efficient use of its water resources to protect both short- and long-term water supply reliability. This is accomplished by implementing water-efficiency programs that are consistent with accepted best management practices and comply with any State-mandated water use reductions, and mandatory water conservation measures when the City's water supplies are projected to last three years or less. The City is a member of Partners in Water Conservation and the CUWCC.

Surface water from both reservoirs is considered to be of high quality. Groundwater quality has been generally good, but PCE contamination and occasional spikes in the nitrate content of well water has caused the City to provide additional treatment for individual wells or to take certain wells out of production.

4.6.7.1.2 *Cal Poly San Luis Obispo*

Source: 2007 Cal Poly Master Plan and EIR

Cal Poly is located to the north of the City of San Luis Obispo. The university receives water from the City water system. Though it does not treat its own water, available supply is governed by entitlements from surface water sources. Cal Poly occupies 1,321 acres with a campus core of 155 acres. The university also owns ranches and other outlying properties comprising an additional 8,357 acres. Water demand includes extensive agricultural and landscape irrigation requirements. The supply and demand discussion below applies to the 1,321-acre campus area. In 2008, Cal Poly's population was:

- Students: 19,471
- Faculty: 1,293
- Staff: 1,752
- Total: 22,516

At build-out, the total population could reach 23,100. Water demand is summarized in Table 4.29.

Cal Poly derives its water from groundwater sources and through surface water entitlements. For general use, the university owns entitlement to 33.7 percent of the storage capacity in Whale Rock Reservoir or approximately 13,707 acre-feet when the reservoir is

full. Cal Poly's portion of the safe yield from the reservoir is calculated as 1,384 AFY, but diminishes approximately 2 AFY due to siltation. However, their allotment is based on volume and not on a flow rate, so Cal Poly is not bound by this limit. The City treats and delivers approximately 600 AFY to Cal Poly. The remainder is untreated water primarily used for agriculture and landscape irrigation, drawn directly from the Whale Rock raw water pipeline or from agricultural wells. The safe yield from groundwater is undocumented, but no decline in groundwater level has been noticed.

Future demands for domestic needs will be met by increasing the proportion of Whale Rock water treated by the City. Agricultural needs could be met in various ways, including increasing irrigation efficiency, withdrawing land from cultivation, using more groundwater, and other management practices.

Surface water from Whale Rock is considered to be of high quality. Groundwater quality has been generally good, though increases in nitrate levels have been measured in groundwater flowing through the aquifer as it passes under the Cal Poly campus.

4.6.7.1.3 *Avila Beach Community Services District*

Source: 2006 Draft Water Master Plan

The Avila Beach Community Services District (Avila Beach CSD) supplies its customers with domestic water service, wastewater service and fire protection, among other services. Avila Beach is an unincorporated coastal community. Avila Beach consists of a mix of residential, commercial, agriculture, and recreational areas. The community's population was 395 in 1998 at the beginning of the Unocal clean up of Avila Beach and reduced to 240 in 2006. The build-out population is projected to reach 672. Table 4.29 summarizes the existing and forecast water demand.

The water supply for the Avila Beach CSD is contracted through County Service Area 12 (CSA 12), and consists of both Lopez Reservoir (68 AFY) and State Water (100 AFY) allocations for a total supply of 168 AFY.

Water quality for both Lopez Lake and State Water treated sources meets both primary and secondary standards for drinking water, though regular monitoring of the treatment process is necessary to make appropriate adjustments to account for seasonal changes in the quality of Lopez Lake water.

4.6.7.1.4 *Avila Valley Mutual Water Company*

Source: 2008 Avila Valley MWC Consumer Confidence Report and personal communication with Avila Valley MWC Director Jerry Hartzell

Avila Valley Mutual Water Company (Avila Valley MWC) serves a small cluster of homes in the Avila Valley area. The service area is built out with a population of 65 residents (28 connections). The 2008 water demand was 32 AFY. Avila Valley MWC receives its water

supply from surface sources. The Avila Valley MWC contracts with the District for a 20 AFY allocation of State Water and 60 AFY of Drought Buffer, which is distributed through Zone 3 facilities. 12 AFY allocation of Lopez Lake water procured from CSA 12, bringing its total supply to 32 AFY. The Avila Valley MWC also owns two wells for emergency backup purposes, but because of water quality issues, they are not used on a regular basis. Avila Valley MWC is interested in an additional 20 to 40 AFY of State Water if it becomes available.

The quality of Avila Valley MWC water is similar to others using water from Lopez Lake. Well water is of poor quality and would only be treated and used as an emergency backup in case of disruption to the surface supply.

4.6.7.1.5 *San Miguelito Mutual Water Company*

Source: 2008 San Miguelito MWC Consumer Confidence Report and personal communication with Director Rick Koon

San Miguelito Mutual Water Company (San Miguelito MWC) serves the San Luis Bay Estates area in the community of Avila Beach. The 2008 population served was 1,385 (620 connections) and a build-out population of 2,100 (930 connections). The water demand is summarized in Table 4.29.

The San Miguelito MWC receives its water supply from both surface and groundwater sources. It contracts with the District for a 275 AFY allocation of State Water and 275 AFY of Drought Buffer, which is wheeled through Zone 3 facilities. Additional water is pumped from three local wells that draw water from the aquifer fed by San Luis Obispo Creek. The San Miguelito MWC's goal is to provide consumers with a 70/30 blend of surface/well water, but problems with the well system have limited its contribution to 10 to 20 percent in recent years.

With a fully functioning water supply system, the San Miguelito MWC has adequate supply to meet both existing and future water requirements. San Miguelito MWC has been noted as being interested in an additional 10 AFY of State Water if it became available.

Quality of San Miguelito MWC water is similar to others using water from Lopez Lake. Raw well water is treated for iron and manganese removal and mixed with Lopez Lake water prior to delivery.

4.6.7.1.6 *County Service Area 12*

Source: 2005 Zone 3 UWMP

County Service Area 12 (CSA 12) provides 61 AFY of Lopez Reservoir water to customers in the rural area east of Avila Beach and transfers up to 100 AFY of Lopez Reservoir water through its piping system to Port San Luis. Port San Luis currently uses only 35 percent

Table 4.29 San Luis Obispo (includes County airport), Cal Poly San Luis Obispo, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, CSA 12, and Port San Luis Demand and Supply

	San Luis Obispo (includes airport)	Cal Poly San Luis Obispo	Avila Beach CSD	Avila Valley MWC	San Miguelito MWC	CSA-12	Port San Luis
Demand							
Existing Demand (AFY)	6,389	1,040	51	32	263	68	35
Forecast Demand (AFY)	7,499-7,894[1]	1,479-1,557[1]	162-170[1][15]	30-32[1]	373-393[1]	65-68[1]	33 - 35[1]
Supply							
State Water Project (AFY)[2]	0	0	66[3]	20	275	7[4]	0
Whale Rock Reservoir (AFY)	6,940[5]	1,384[6]	0	0	0	0	0
Salinas Reservoir (AFY)	[5]	0	0	0	0	0	0
Nacimiento Water Project (AFY)	3,380[7]	0	0	0	0	0	0
Lopez Lake Reservoir (AFY)	0	0	68	12	0	61	100
San Luis Valley Sub-basin (AFY)[8]	100	unmetered[9]	0	0	0	0	0
Avila Valley Sub-basin (AFY)[10]	0	0	0	Uncertain	118	Uncertain[11]	0
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	0	0
Recycled Water (AFY)	130[14]	0	0	0	0	0	0
SWRCB Water Diversions (AFY)	0	45	0[12]	0	0	0	0
Loss of Availability due to Siltation to 2060 (AFY)	-500	0	0	0	0	0	0
Total Supply (AFY)	**9,950[15]**	**1,429**	**134**	**32**	**393**	**68**	**100**

Notes:
1. The low end of the forecast demand range assumes five percent additional conservation (beyond what has already been accomplished) at build-out for all urban users.
2. State Water Project average allocation assumed 66 percent of contract water service amount.
3. Avila Beach CSD has a 100 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 66 AFY.
4. 7 AFY of SWP water allocated to the San Luis Coastal Unified School District.
5. The City of San Luis Obispo's withdrawals from the Salinas Reservoir are coordinated with Whale Rock Reservoir. San Luis Obispo's combined safe yield of the two reservoirs was 6,940 AFY in 2010.
6. Includes 600 AFY of treated water delivered from the City of San Luis Obispo.
7. Nacimiento Water Project is scheduled to go online in 2010.
8. Estimated safe basin yield is 2,000 AFY and all pumping is for urban, agricultural or rural users. The City of San Luis Obispo's use is approximately 100 AFY, but the City does not consider their 500 AFY share of the safe yield as part of its water resource availability. The remaining 1,500 AFY is available for other urban users, agricultural irrigation, and private domestic use.
9. Cal Poly's agricultural wells contribute to the supply but are not metered. It is likely that the groundwater supply and on-going conservation measures would eliminate the possible future deficit.

Table 4.29 San Luis Obispo (includes County airport), Cal Poly San Luis Obispo, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, CSA 12, and Port San Luis Demand and Supply							
	San Luis Obispo (includes airport)	**Cal Poly San Luis Obispo**	**Avila Beach CSD**	**Avila Valley MWC**	**San Miguelito MWC**	**CSA-12**	**Port San Luis**
10. No basin yield numbers have been published for the Avila Valley Sub-basin. 11. Individual water users within CSA 12 boundary could request an exemption to install a private well and pump water from the Avila Valley Sub-basin. It is unknown the number of users with private wells, but it is likely minimal. 12. SWRCB water diversions database lists "Avila Beach County Water District" (now Avila Beach CSD) for 80 AFY from Canyon Creek underflow. The conditions were that Avila Beach CSD cannot use Canyon Creek Underflow as a supply once they have State Water. The creek diversion is no longer a source of supply for them. 13. Diversions do not distinguish type of use. Potentially 207 AFY could be diverted for use to either agriculture or rural residential. 14. The City's current recycled water use is 130 AFY. Expansion of the City of San Luis Obispo Water Reclamation Facility could make 4,690 AFY of recycled water available for use, but the current plans are to use only 1,000 AFY in the future. City has been approached about using recycled water for agriculture irrigation. Recycled water for agricultural usage provides the added benefit of maintaining an agricultural buffer around the City. 15. 170 AFY includes 20 AFY from projected Tank Farm Development.							

(35 AFY) of that allocation. In addition, CSA 12 transfers water through its piping system to Avila Beach CSD, Avila Valley MWC, and San Miguelito MWC (discussed separately).

Water supplies for CSA 12 also include 7 AFY from the State Water Project allocated to the San Luis Coastal Unified School District. Entities within CSA 12 have been noted as being interested in an additional 30 AFY of State Water if it becomes available.

4.6.7.1.7 *Rural Users*

The existing rural demand for WPA 6 is 450 AFY and projected future range is 610 to 660 AFY.

4.6.7.1.8 *Agricultural Users*

The existing annual applied water for WPA 6 is approximately 3,610 AFY. The existing crops in this area include deciduous, nursery, pasture, vegetable, citrus, and vineyards. The projected future annual applied water for WPA 6 ranges from approximately 2,810 to 4,120 AFY. The existing annual applied water falls within the range of projected future agricultural demand.

4.6.7.1.9 *Environmental*

The unimpaired mean annual discharge for WPA 6 is approximately 45,820 AFY and environmental water demand is approximately 33,030 AFY. WPA 6 was divided into four sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The largest creek in these sub-watersheds is San Luis Obispo Creek. San Luis Obispo Creek has an instream flow requirement of a minimum daily average of discharge 2.5 cubic feet per second (cfs), which is equivalent to approximately 1,810 AFY (NOAA, 2005).

4.6.7.1.10 *San Luis Obispo/Avila WPA 6 Water Demand and Supply Summary*

Table 4.30 San Luis Obispo/Avila WPA 6 Demand and Supply

	San Luis Obispo (includes airport)	Cal Poly San Luis Obispo	Avila Beach CSD	Avila Valley MWC	San Miguelito MWC	CSA-12	Port San Luis	Agriculture	Rural	Environmental
Demand										
Existing Demand (AFY)	6,389	1,040	51	32	263	68	35	3,610	450	
Forecast Demand (AFY)	7,499-7,894[1]	1,479-1,557[1]	162-170[1][16]	30-32[1]	373-393[1]	65-68[1]	33 - 35[1]	2,810–4,120	610–660	
Supply										
State Water Project (AFY)[2]	0	0	66[3]	20	275	7[4]	0	0	0	
Whale Rock Reservoir (AFY)	6,940[5]	1,384[6]	0	0	0	0	0	0	0	
Salinas Reservoir (AFY)	[5]	0	0	0	0	0	0	0	0	
Nacimiento Water Project (AFY)	3,380[7]	0	0	0	0	0	0	0	0	
Lopez Lake Reservoir (AFY)	0	0	68	12	0	61	100	0	0	
San Luis Valley Sub-basin (AFY)[8]	100	unmetered[9]	0	0	0	0	0	Uncertain[8]	Uncertain[8]	
Avila Valley Sub-basin (AFY)[10]	0	0	0	Uncertain	118	Uncertain[11]	0	Uncertain[10]	Uncertain[10]	
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	0	0	Uncertain	Uncertain	
Recycled Water (AFY)	130[15]	0	0	0	0	0	0	0	0	
SWRCB Water Diversions (AFY)	0	45	0[12]	0	0	0	0	[13]	[13]	
Loss of Availability due to Siltation to 2060 (AFY)	-500	0	0	0	0	0	0	0	0	
Total Supply (AFY)	**9,950[14]**	**1,429**	**134**	**32**	**393**	**68**	**100**	**Uncertain**	**Uncertain**	
Environmental Water Demand										
Environmental Water Demand (AFY)[17][19]										33,030
Unimpaired Mean Annual Discharge (AFY)[18][19]										45,820

Table 4.30 San Luis Obispo/Avila WPA 6 Demand and Supply

	San Luis Obispo (includes airport)	Cal Poly San Luis Obispo	Avila Beach CSD	Avila Valley MWC	San Miguelito MWC	CSA-12	Port San Luis	Agriculture	Rural	Environmental

Notes:
1. The low end of the forecast demand range assumes 5% additional conservation (beyond what has already been accomplished) at build-out for all urban users.
2. State Water Project average allocation assumed 66 percent of contract water service amount.
3. Avila Beach CSD has a 100 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 66 AFY.
4. 7 AFY of SWP water allocated to the San Luis Coastal Unified School District.
5. The City of San Luis Obispo's withdrawals from the Salinas Reservoir are coordinated with Whale Rock Reservoir. San Luis Obispo's combined safe yield of the two reservoirs was 6,940 AFY in 2010.
6. Includes 600 AFY of treated water delivered from the City of San Luis Obispo.
7. Nacimiento Water Project is scheduled to go online in 2010.
8. Estimated safe basin yield is 2,000 AFY and all pumping is for urban, agricultural or rural users. The City of San Luis Obispo's use is approximately 100 AFY, but the City does not consider their 500 AFY share of the safe yield as part of its water resource availability. The remaining 1,500 AFY is available for other urban users, agricultural irrigation, and private domestic use.
9. Cal Poly's agricultural wells contribute to the supply but are not metered. It is likely that the groundwater supply and on-going conservation measures would eliminate the possible future deficit.
10. No basin yield numbers have been published for the Avila Valley Sub-basin.
11. Individual water users within CSA 12 boundary could request an exemption to install a private well and pump water from the Avila Valley Sub-basin. It is unknown the number of users with private wells, but it is likely minimal.
12. SWRCB water diversions database lists “Avila Beach County Water District” (now Avila Beach CSD) for 80 AFY from Canyon Creek Underflow. The conditions were that Avila Beach CSD cannot use Canyon Creek Underflow as a supply once they have State Water. The creek diversion is no longer a source of supply for them.
13. Diversions do not distinguish type of use. Potentially 207 AFY could be diverted for use to either agriculture or rural residential.
14. City of San Luis Obispo's supply portfolio includes groundwater, but due to limitations on its use, the City will not consider this supply as part of its water resource availability. Siltation is expected to reduce reservoir capacity and supply by 10 acre-feet per year, or 500 af by year 2060. The water supply surplus calculation accounts for reduction in water availability due to siltation. The City includes a reliability reserve in their water supply portfolio.
15. The City's current recycled water use is 130 AFY. Expansion of the City of San Luis Obispo Water Reclamation Facility could make 4,690 AFY of recycled water available for use, but the current plans are to use only 1,000 AFY in the future. City has been approached about using recycled water for agriculture irrigation. Recycled water for agricultural usage provides the added benefit of maintaining an agricultural buffer around the City.
16. 170 AFY includes 20 AFY from projected Tank Farm Development.
17. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
18. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
19. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.6.7.2 South Coast WPA 7

The water supply sources for this WPA include the State Water Project, Lopez Lake Reservoir, Edna Valley, Pismo Creek Valley, Santa Maria Valley, Arroyo Grande Valley, Pismo Formation, Paso Robles Formation, and other groundwater basin supplies, recycled water, and State Board diversions. A future water supply might include the Nipomo supplemental water project.

4.6.7.2.1 *Golden State Water Company (Edna Valley)*

Source: *Golden State Water Company files*

Golden State Water Company (GSWC) supplies its Edna Valley customers with domestic water service. The service area is an unincorporated area south of the City of San Luis Obispo, located in along Highway 227, near the County Airport. The Edna Valley area is comprised of residential and agriculture areas and dominated by the San Luis Obispo Country Club, which includes an 18-hole golf course. Table 4.31 below summarizes existing and forecast demand for the GSWC service area.

Table 4.31 Golden State Water Company (Edna Valley) Demand and Supply

	Golden State Water Company (Edna Valley)
Demand	
Existing Demand (AFY)	410
Forecast Demand (AFY)	434-482
Supply	
Edna Valley Sub-basin (AFY)(1)	410
Other Groundwater Supply Sources (AFY)	0
Recycled Water (AFY)	87(2)
Total Supply (AFY)	**482**

Notes:
1. Edna Valley Sub-basin estimated safe basin yield is 4,000 AFY and all pumping is for urban, agricultural, rural users, golf courses, and CSA 18.
2. The golf course receives all of the WWTP's recycled water effluent for irrigation use (2009 - Range: 59,000-134,000 gpd, average flow: 78,000 gpd; permitted 120,000 gpd as a monthly average).

The GSWC Edna Road service area draws water from three wells, each with 500 gpm pumping capacity. The wells tap the Edna Valley Groundwater Basin. The golf course receives all of the wastewater treatment plant's recycled water effluent for irrigation. In 2009, the average recycled water flow was approximately 78,000 gallons per day (gpd). The groundwater supply complies with all primary and secondary MCLs; however, treatment is required. Lewis Lane Wells No. 3 and No. 4 are treated for high iron and manganese by oxidation and subsequent filtration, as well as partial treatment for intermittently high selenium by ion exchange. Nitrate and arsenic are also present in all three wells, but average less than one-half the MCL, and are removed along with selenium in the ion exchange unit.

4.6.7.2.2 *Rural Users*

The existing annual rural water demand in the WPA 7 summary table (Table 4.38 below) includes the rural demand for the areas in WPA 7 that are located outside of the NMMA, NCMA, and SMVMA boundaries. The existing rural demand for outlying areas in WPA 7 is 1,480 AFY and the projected demand for outlying areas in WPA 7 is 1,990 to 2,160 AFY. The majority of existing rural parcels identified in WPA 7 are classified as developed rural residential, rural suburban, or rural lands. The majority of vacant parcels in WPA 7 that could be converted to rural residential in the future are vacant parcels with rural land use designations.

4.6.7.2.3 *Agricultural Users*

The existing annual applied water in Table 4.38 includes the demand for the areas in WPA 7 that are located outside of the NMMA, NCMA, and SMVMA boundaries. The existing annual applied water for this part of WPA 7 is approximately 19,920 AFY. The projected future demand ranges from 16,610 to 23,830 AFY.

4.6.7.2.4 *Environmental*

The unimpaired mean annual discharge for WPA 7, inclusive of the water management areas, is approximately 49,100 AFY and environmental water demand of 32,960 AFY. WPA 7 was divided into five sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. Creeks in these sub-watersheds include Pismo and Arroyo Grande Creek. The Arroyo Grande Creek below Lopez Dam has instream flow requirements that vary from less than 3 cfs to 20 cfs (2,170 AFY to 14,480) based on time of year and amount of water in the reservoir (Stetson Engineers, 2004).

4.6.7.2.5 *Northern Cities Management Area (NCMA)*

- City of Pismo Beach
- City of Arroyo Grande
- City of Grover Beach

- Oceano Community Services District
- Rural Users
- Agricultural Users

Existing and forecast demand for the NCMA are summarized in Table 4.32 following the member descriptions.

City of Pismo Beach

Source: *2004 City of Pismo Beach Water Master Plan, 2010 City of Pismo Beach UWMP, 2008 and 2009 NCMA Annual Reports*

The City of Pismo Beach supplies its customers with domestic water service. The dominant economic activity in Pismo Beach is tourism, and as a result, the population of Pismo Beach can more than double during summer holidays. The 2010 population was 7,676 and the forecast build-out population is 11,854. Table 4.32 below summarizes existing and forecast demands.

The City receives water from three water sources: local groundwater, Lopez Reservoir and the State Water Project. 700 AFY local groundwater is extracted from the Arroyo Grande Plain, which is part of the Santa Maria Valley Groundwater Basin. Extraction rights are shared by agreement with the City of Arroyo Grande, the City of Grover Beach, and the Oceano Community Services District (Oceano CSD). As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be increased or decreased at a future date.

Pismo Beach receives 896 AFY from the Zone 3 Lopez Project as a contractual supply. Environmental protection issues may call for increased or decreased releases to Lopez Creek, potentially reducing or increasing the allotment available for Pismo Beach and other cities. Pismo Beach also receives 1,240 AFY from the SWP via contract with the District and delivery through Zone 3 facilities. The City also has a 1,240 AFY Drought Buffer allocation.

Future water supply possibilities may include additional State Water supplies, tertiary treatment/reuse of wastewater, and extraction from local groundwater basins. Pismo Beach, in coordination with the NCMA, is also investigating the feasibility of increasing the safe yield of Lopez Reservoir. The City of Pismo Beach 2010 UWMP states that the City of Pismo Beach is “committed to employ recycled water as a beneficial resource to protect and reduce consumption of its potable water resources” and that “the City may begin regional planning efforts regarding recycled water within the next five years.” Pismo Beach has been noted as being interested in an additional 500 AFY of State Water and 1,500 AFY of Drought Buffer if it becomes available.

City of Arroyo Grande

Source: *2010 City of Arroyo Grande Final Draft UWMP and 2008 and 2009 NCMA Annual Reports*

The City of Arroyo Grande supplies its customers with domestic water service. Arroyo Grande is located in the southern portion of San Luis Obispo County along the banks of the Arroyo Grande Creek. Land use is primarily residential and agriculture with a small commercial sector. There are no agricultural or industrial water service connections. In 2010, the service population was 16,901 and the forecast build-out population is 20,000. Existing and forecast waster demand are summarized in Table 4.32 below.

Arroyo Grande has agreements in place to draw up to 3,794 AFY from four water sources: two groundwater basins, Lopez Reservoir and through Oceano CSD. Arroyo Grande's share of groundwater extracted from the Arroyo Grande Plain (which is part of the Santa Maria Valley Groundwater Basin) is 1,314 AFY (includes 112 AFY of agricultural land conversion credit). Extraction rights are shared by agreement with the City of Pismo Beach, the City of Grover Beach, and the Oceano CSD. As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be decreased at a future date.

Arroyo Grande extracts 80 AFY of groundwater from the Pismo Formation, which is outside of the NCMA and not subject to management agreements. Its contractual supply of Zone 3 Lopez Project water is 2,290 AFY. Environmental protection issues may call for increased releases to Lopez Creek, potentially reducing the allotment available for Arroyo Grande and other cities.

Arroyo Grande and Oceano CSD have entered into an interim water supply agreement for delivery of up to 100 AFY of Oceano CSD water supplies to the Arroyo Grande. Arroyo Grande is currently using between 90 and 95 percent of their current supply allocation, and therefore is in need of temporary water transfer agreements to meet water supply needs. Oceano CSD will deliver up to 100 AFY of groundwater and/or State Water, at Oceano CSD's discretion. This temporary agreement ends in 2014.

Future water supply possibilities include desalination, recycled water and State Water. Arroyo Grande is committed to participating in a regional effort to utilize recycled water, and will continue to participate in a dialogue between regional agencies interested in a recycled water program (including but not necessarily limited to the NCMA agencies). Arroyo Grande has been noted as being interested in 200 to 400 AFY of State Water if it becomes available.

Lopez Lake water has seasonal quality fluctuations that must be addressed by adjusting treatment methods. Groundwater quality varies by depth and source, with some of the shallower wells drawing water with high nitrate levels. Water extracted from the Pismo Formation receives iron/manganese treatment prior to delivery. Through appropriate mixing, the City has been able to deliver water that meets drinking water standards.

City of Grover Beach

Source: *2005 City of Grover Beach UWMP, 2008 and 2009 NCMA Annual Reports, Draft 2010 Water Master Plan*

The City of Grover Beach supplies its customers with domestic water service. Grover Beach is primarily a residential community, with a small commercial/industrial sector. Approximately 80 percent of the water consumers are residents. No agricultural consumers are served by the City water system, though landscape irrigation consumes approximately 90 AFY. In 2010, the population was 13,156. The build-out population is expected to reach 15,000. Table 4.32 summarizes existing and forecast demands.

Grover Beach receives water from Lopez Lake and also uses groundwater from four municipal wells and one irrigation pump. The Zone 3 Lopez Project provides a contractual supply of up to 800 AFY to Grover Beach.

Three shallow wells draw water from the Paso Robles formation and a fourth well draws water from the deeper Careaga formation. Extraction rights are shared by agreement with the City of Arroyo Grande, the City of Pismo Beach, and the Oceano CSD. The City of Grover Beach is currently entitled to 1,407 AFY from this source per the agreement. This includes a 209 AFY allocation from an Agricultural Land Conversion Credit. As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be decreased for both of these allocations at a future date.

Two hundred twenty-five AFY non-potable groundwater is pumped from irrigation wells used on the State Parks Department golf course and a large park within the City. Grover Beach had a temporary transfer agreement with Oceano CSD that allowed the City to purchase up to 100 AFY, but this agreement expired.

Potential future water supply sources under consideration include desalination, State Water and recycled wastewater.

Lopez Lake water has seasonal quality fluctuations that must be addressed by adjusting treatment methods. The ground water from the Paso Robles formation meets all state and federal standards except for nitrate concentration. Grover Beach completed construction of an ion exchange water treatment plant designed to remove nitrates from the shallow well water in 1989.

Oceano Community Services District

Source: *2009 Oceano Community Services District Draft Water Master Plan Update and 2008 and 2009 NCMA Annual Reports*

The Oceano CSD provides water services to the community of Oceano. The service area encompasses approximately 1,150 acres. The Oceano CSD service area is located immediately south of Grover Beach and Arroyo Grande. Oceano CSD includes residential,

commercial, industrial, agricultural, and public facility land uses. Existing population (as of July 2009) within the Oceano CSD service area is estimated at 8,137 and the forecast population is estimated at 12,855. Table 4.33 summarizes existing and forecast water demand.

The Oceano CSD utilizes water from three sources, including groundwater, the State Water Project and Lopez Lake water. The groundwater allocation is limited to 900 AFY by agreement with the City of Arroyo Grande, the City of Pismo Beach, and the City of Grover Beach. As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be decreased at a future date.

Oceano CSD receives a 303 AFY allocation from Lopez Lake, subject to possible reduction if habitat requirements dictate. It also receives 750 AFY from the State Water Project, but no drought buffer. Therefore, the assumption that contractors will receive 66 percent of their State Water Project allocation reduces this supply to 495 AFY. Participation in the District's drought buffer program for State Water would improve water supply reliability for the Oceano CSD.

As discussed above for the City of Arroyo Grande, Oceano CSD entered into an interim water supply agreement, for delivery of up to 100 AFY of Oceano CSD water to Arroyo Grande. Oceano CSD will deliver up to 100 AFY of groundwater and/or State Water, at Oceano CSD's discretion. This temporary agreement ends in 2014.

In reviewing the CCR for 2008, the Oceano CSD continues to meet all Federal and State Drinking Water Standards. Selenium levels continue to be high, from two of their existing wells (Wells 4 and 5); however, drinking water standards are met through blending with other water sources.

Seawater intrusion has been measured in two the of coastal monitoring wells in the Oceano area. The rains of 2010-2011, and reduced groundwater production, pushed back the subterranean ocean interface, but the close proximity of that interface creates supply uncertainties.

pw://Carollo/Documents/Client/CA/SLOCFCWCD/8257A00/Deliverables/MWR 04

Table 4.32 Pismo Beach, Arroyo Grande, Grover Beach, and Oceano CSD Demand and Supply

	Northern Cities Management Area			
	Pismo Beach[1]	**Arroyo Grande[1]**	**Grover Beach[1]**	**Oceano CSD[1]**
Demand				
Existing Demand (AFY)	1,944[2]	2,956[2]	1,787[2]	855[2]
Forecast Demand (AFY)	2,679 - 2,977[3]	3,735 - 4,150[3]	1,892 - 2,500[3]	1,277 - 1,419[3]
Supply				
State Water Project (AFY)[4]	1,240	0	0	495[5]
Lopez Lake Reservoir (AFY)	896	2,290	800	303
Arroyo Grande Plain Hydrologic Subarea (part of Santa Maria Valley Groundwater Basin) (AFY)[6]	700	1,202	1,198 + 225 [9]	900
Agricultural Land Conversion Credit (AFY)[7]	0	112	209	0
Transfers (AFY)[8]	0	100	0	-100
Pismo Formation outside the NCMA (AFY)	0	80	0	0
Other Groundwater Supply Sources (AFY)	0	0	0	0
Total Supply (AFY)	**2,836**	**3,794**	**2,432**	**1,598**

Notes:
1. Part of the Northern Cities Management Area (NCMA)
2. 2010 Annual Monitoring Report Northern Cities Management Area, Table 1. 2009 and 2008 demands listed below for reference.
   Pismo Beach reported 2,039 AFY in 2009 and 2,208 AFY in 2008
   Arroyo Grande reported 3,315 AFY in 2009 and 3,579 AFY in 2008
   Grover Beach reported 1,941 AFY in 2009 and 2,051 AFY in 2008
   Oceano CSD reported 885 AFY in 2009 and 933 AFY in 2008
   Agriculture reported 2,742 AFY in 2009 and 2008
   Rural residential reported 36 AFY in 2009 and 2008
3. Ten percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand, except for Grover Beach, which assumed 20% additional reduction.
4. State Water Project average allocation assumed 66 percent of contract water service amount.
5. Oceano CSD has a 750 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 495 AFY.

pw://Carollo/Documents/Client/CA/SLOCFCWCD/8257A00/Deliverables/MWR 04

Table 4.32 Pismo Beach, Arroyo Grande, Grover Beach, and Oceano CSD Demand and Supply				
	Northern Cities Management Area			
	Pismo Beach[(1)]	Arroyo Grande[(1)]	Grover Beach[(1)]	Oceano CSD[(1)]

6. Safe yield of 9,500 AFY with subdivisions for applied irrigation (5,300 AFY), subsurface outflow to the ocean (200 AFY), and urban use (4,000 AFY). The 2002 Groundwater Management Agreement safe yield allotment for urban use is broken down per the numbers shown.
7. 2002 Settlement Agreement provides that groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses.
8. Arroyo Grande has an active agreement to purchase 100 AFY of Oceano CSD supplies from groundwater or Lopez Lake water. This temporary agreement ends in 2014.
9. Non-potable groundwater pumped from irrigation wells used on the State Parks Department golf course and a City park. The portion of the 225 AFY attributed to the golf course predates the Gentlemen's Agreement. The portion for the park is a substitute for preexisting agricultural use on the park site.

Rural Users

2008, 2009, and 2010 NCMA Annual Reports

Rural water demand includes small community water systems, domestic use, recreational use and agriculture-related business. Small community water systems using the Arroyo Grande Plain Hydrologic Subarea groundwater in the NCMA were identified initially through review of a list of water purveyors compiled in the 2005 San Luis Obispo County Integrated Regional Water Management Plan. These include the Halcyon Water System, Ken Mar Gardens, and Pacific Dunes RV Resort. The Halcyon Water System serves 35 homes in the community of Halcyon, while Ken Mar Gardens provides water supply to 48 mobile homes on South Halcyon Road. The Pacific Dunes RV Resort, with 215 RV sites, provides water supply to a largely transitory population and nearby riding stable. Two mobile home communities, Grande Mobile and Halcyon Estates, are served potable water from the City of Arroyo Grande. In addition, about 25 homes and businesses have been identified through inspection of aerial photographs of rural areas within NCMA. Irrigation of schools and parks from privately operated wells is accounted for in the applied irrigation demand section of the 2009 NCMA Annual Report. It is assumed that the number of private wells is negligible within the service areas of the four Northern Cities. The estimated rural water demand is shown in Table 4.33.

Table 4.33 Northern Cities Management Area Rural Water Use Demand

Arroyo Grande Plain Hydrologic Sub-area Groundwater User	No. of Units	Estimated Water Demand (AFY)	Notes
Halcyon Water System	35	14	(1)
Ken Mar Gardens	48	8	(2)
Pacific Dunes RV Resort	215	6	(3)
Rural Users	25	10	(1)

Table recreated from Table 3 from the 2010 Annual Monitoring Report for the NCMA.
Notes:
1. Water demand/unit based on 2000 and 2005 Grover Beach water use per connection, 2005 UWMP.
2. 2010 NCMA Annual Report.
3. Water demand/unit assumes 50 percent annual occupancy and 0.06 AFY per occupied site.

Agricultural Users

2008, 2009, and 2010 NCMA Annual Reports

Applied irrigation is private water used for non-domestic purposes. In the NCMA, applied irrigation demands are defined by agriculture and irrigated turf grass at schools and a golf course. Applied irrigation demand is estimated using crop type specific gross irrigation requirements by acre and land use data.

Gross irrigation requirements for the NCMA are from the San Luis Obispo County 1998 Master Water Plan Update. The County Master Water Report Update includes low, average, and high estimates of irrigation demand by crop type for each of the Water Planning Areas (WPAs) in the County. The range in estimated irrigation demands is based upon climactic conditions and irrigation efficiency; double cropping is included for relevant crops.

The areal extent of cultivated agricultural areas in the NCMA was quantified using the 2007 land use survey prepared by the San Luis Obispo County Agriculture Department. The land use survey map provides information on acreage and type of crops in the area. Public works personnel within the NCMA identified the areas with irrigated turf grass.

There are about 1,600 acres of irrigated agriculture within the NCMA of which approximately four acres are nursery crops, and the remainder is truck crops. There is a combined total of 44 acres of irrigated turf grass at the Oceano Elementary School, Arroyo Grande High School, Harloe Elementary School, and the Le Sage Riviera Golf Course.

For 2009, the annual precipitation and evapotranspiration was compared to average conditions to determine if the year in question had a low, average, or high irrigation water demand. For the 2009 NCMA Annual Report, average irrigation efficiencies were assumed. Therefore, the annual irrigation demand for each crop type is assumed to be dependant only on that year's precipitation and evapotranspiration. The range of demand estimates for all applied irrigation uses were as follows:

- Wet years: 2,056 AFY (2005, 2006, and 2010)
- Average years: 2,397 AFY (2004)
- Dry years: 2,742 AFY (2007, 2008, and 2009)

NCMA Water Demand and Supply Summary

Table 4.34 Northern Cities Management Area Demand and Supply

	Pismo Beach[1]	Arroyo Grande[1]	Grover Beach[1]	Oceano CSD[1]	Agriculture	Rural
Demand						
Existing Demand (AFY)	1,944[2]	2,956[2]	1,787[2]	855[2]	2,056[2][3]	38
Forecast Demand (AFY)	2,679 - 2,977[11]	3,735 - 4,150[11]	1,892 - 2,500[11]	1,277 - 1,419[11]	2,742	38
Supply						
State Water Project (AFY)[4]	1,240[5]	0	0	495[6]	0	0
Lopez Lake Reservoir (AFY)	896	2,290	800	303	0	0
Arroyo Grande Plain Hydrologic Sub-area (part of Santa Maria Valley Groundwater Basin) (AFY)[7]	700	1,202	1,198 + 225 [12]	900	5,300[9]	36
Agricultural Land Conversion Credit (AFY)[8]	0	112	209	0	0	0
Transfers (AFY)[9]	0	100	0	-100	0	0
Pismo Formation outside the NCMA (AFY)	0	80	0	0	0	0
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	0
SWRCB Water Diversions (AFY)	0	0	0	0	[10]	[10]
Total Supply (AFY)	**2,836**	**3,794**	**2,432**	**1,598**	**Uncertain**	**Uncertain**

Notes:

1. Part of the Northern Cities Management Area (NCMA)
2. 2010 Annual Monitoring Report Northern Cities Management Area, Table 1. 2009 and 2008 demands listed below for reference.
   Pismo Beach reported 2,039 AFY in 2009 and 2,208 AFY in 2008
   Arroyo Grande reported 3,315 AFY in 2009 and 3,579 AFY in 2008
   Grover Beach reported 1,941 AFY in 2009 and 2,051 AFY in 2008

Table 4.34 Northern Cities Management Area Demand and Supply

	Pismo Beach[1]	Arroyo Grande[1]	Grover Beach[1]	Oceano CSD[1]	Agriculture	Rural

Oceano CSD reported 885 AFY in 2009 and 933 AFY in 2008
Agriculture reported 2,742 AFY in 2009 and 2008
Rural residential reported 36 AFY in 2009 and 2008

3. Agriculture is grouped in a category referred to as "Applied Irrigation" which is private water used for non domestic purposes. In the NCMA, Applied Irrigation demands are defined by agriculture and irrigated turf grass at schools and a golf course. Of the 2,056 AFY Applied Irrigation demand, agriculture likely accounted for 1,933 AFY (or 94 percent).
4. State Water Project average allocation assumed 66 percent of contract water service amount.
5. 140 AFY of the 1,240 AFY contracted amount has been allocated for Pismo Ranch.
6. Oceano CSD has a 750 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 495 AFY.
7. Safe yield of 9,500 AFY with subdivisions for applied irrigation (5,300 AFY), subsurface outflow to the ocean (200 AFY), and urban use (4,000 AFY). The 2002 Groundwater Management Agreement safe yield allotment for urban use is broken down per the numbers shown.
8. 2002 Settlement Agreement provides that groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses.
9. Arroyo Grande has an active agreement to purchase 100 AFY of Oceano CSD supplies from groundwater or Lopez Lake water. This temporary agreement ends in 2014.
10. Diversions do not distinguish type of use. Potentially 1,243 AFY could be diverted for use to either agriculture or rural residential in WPA 7.
11. 10% additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand, except for Grover Beach, which assumed 20% additional reduction.
12. Non-potable groundwater pumped from irrigation wells used on the State Parks Department golf course and a City park. The portion of the 225 afy attributed to the golf course predates the Gentlemen's Agreement. The portion for the park is a substitute for preexisting agricultural use on the park site.

4.6.7.2.6 *Nipomo Mesa Management Area (NMMA)*

- Golden State Water Company (Nipomo Area)
- Nipomo Community Services District
- Rural Water Company
- Woodlands Mutual Water Company
- ConocoPhillips
- Rural Users
- Agricultural Users

Existing and forecast demand for the NMMA are summarized in Table 4.35 following the member descriptions.

Golden State Water Company

Source: *GSWC files, 2005 Santa Maria Groundwater Litigation Stipulation and 2008, 2009, and 2010 NMMA Annual Report*

The Golden State Water Company (GSWC) provides water service to approximately 1,475 households on the south side of Nipomo. GSWC serves a rural population that is undergoing development and is expected to grow at a projected rate of 1.42 percent over the next two decades until build-out. Existing and future water demands are summarized in Table 4.35.

GSWC currently uses groundwater for 100 percent of its supply. Groundwater is pumped from the Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin using five active wells. Litigation involving use of this groundwater basin, which began in 1997, has resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. In addition, the stipulated judgment required GSWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY. Once the supplemental water system is in place, GSWC will be required to purchase 8.33 percent (208.25 AFY) of that supply.

Water quality is formally monitored as part of the requirements of the NMMA stipulation. Wells are monitored regularly and reported publicly. The 2009 NMMA report has concluded that there is no evidence of seawater intrusion into the NMMA portion of the groundwater basin. Localized areas of the NMMA have reported nitrate concentrations as high as 90 percent of the MCL. Three of the GSWC wells are currently being treated for iron and manganese.

Nipomo Community Services District

Source: 2007 Nipomo CSD Water and Sewer Master Plan Update, 2008, 2009, and 2010 NMMA Annual Reports, and 2009 Nipomo CSD Waterline Intertie Project Narrative Report, 2010 Public Review Draft Urban Water Management Plan (UWMP)

The town of Nipomo is an unincorporated area located in southern San Luis Obispo County. The Nipomo Community Services District (Nipomo CSD) provides water service to approximately 12,000 residents. Development is expected to continue to expand in the future, more than doubling water demands at build-out, as shown in Table 4.35.

Nipomo CSD currently uses groundwater for 100 percent of supply requirements. Groundwater is pumped from the Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin, using eight active wells and one standby. Litigation involving use of this groundwater basin, which began in 1997, resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. The stipulation also requires the Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY.

The Nipomo CSD has investigated multiple sources of supplemental water and, as a result, signed an agreement with the City of Santa Maria to pursue an intertie project. The January 5, 2010 Wholesale Water Supply Agreement established the basis for purchase and delivery of water from the City to the Nipomo CSD. The project EIR has been certified, and the project is going through its final design stages. If constructed, it will be capable of delivering up to 3,000 AFY and could be completed in two and a half years. Once the supplemental water system is in place, Nipomo CSD will be required to purchase 2,167 AFY of that supply. Three other water purveyors, Woodlands MWC, Golden State Water Company, and Rural Water Company will share in the project costs and will together receive one-third of the mandated minimum water delivery (833 of 2,500 AFY). The additional 500 AFY capacity has been reserved for use by the Nipomo CSD for infill but no annexations or General Plan Amendments. Additional water via the City of Santa Maria (if possible), desalination and recycled water are also being considered as a long-term alternative source for the Nipomo CSD and others in the region.

Water quality discussion is similar to that described for GSWC. Also, there is a concern that nitrate levels are increasing in wells near the Southland WWTF. Though studies have not tied this increase to current effluent disposal practices, the WWTF is investigating alternative effluent disposal methods that will enhance groundwater recharge without increasing nitrate levels.

Rural Water Company

Source: *2008, 2009, and 2010 NMMA Annual Reports and 2005 Santa Maria Groundwater Litigation Stipulation*

Rural Water Company (RWC) provides water to consumers on the northwest side of the Nipomo Mesa, including Cypress Ridge, a planned development consisting of approximately 380 homes and a golf course. RWC serves a residential community that includes both densely spaced homes and numerous large lot rural residences. It also provides non-potable water to the Cypress Ridge Golf Course to supplement irrigation from recycled wastewater. The golf course is irrigated partially by effluent from the Cypress Ridge Wastewater Treatment Facility (Cypress Ridge WWTF), which in turn uses some of the golf course water features as finishing ponds in the waste treatment process. Existing and future water are summarized in Table 4.35.

RWC currently uses groundwater for 100 percent of supply requirements. Groundwater is pumped from the larger Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin, using several active wells. Litigation involving use of this groundwater basin, which began in 1997, resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. The stipulation requires RWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY. Once the supplemental water system is in place, RWC will be required to purchase 8.33 percent (208.25 AFY) of that supply. The Cypress Ridge WWTF currently produces about 50 AFY of irrigation quality effluent, which is used on the golf course.

Water quality discussion is similar to that described for GSWC.

Woodlands Mutual Water Company

Source: 2004 *Water Master Plan, 2005 Santa Maria Groundwater Litigation Stipulation and 2008, 2009, and 2010 NMMA Annual Reports*

The Woodlands is a relatively new housing and commercial development located on the Nipomo Mesa in southern San Luis Obispo County. The Woodlands Mutual Water Company (Woodlands MWC) was organized to provide water to customers within the Woodlands development. The Woodlands MWC currently supplies its customers with domestic water service and wastewater reclamation.

The Woodlands has a tentative map allowing for 1,320 residential units, plus additional commercial facilities. Currently, there are 685 residential lots that have been recorded in final maps. Commercial facilities for the golf course are also constructed at this time. Other facilities that may be constructed in the future include commercial facilities at the business park, a hotel, and a possible school. The planned development also currently has an 18-hole golf course and a smaller 12-hole executive course. The on-site wastewater treatment plant provides the golf courses with recycled water for irrigation; however, the golf courses are also supplemented with groundwater. Another 18-hole golf course is planned for the future, which will be irrigated with groundwater. Existing and future water demands are summarized in Table 4.35.

Currently, the Woodlands MWC relies on groundwater as the sole source of water. The Woodlands MWC owns and operates four wells, three of which produce potable water and the fourth serves irrigation needs. Groundwater is pumped from the larger Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin. Litigation involving use of this groundwater basin, which began in 1997, resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. The stipulation requires Woodlands MWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY.

Woodlands MWC has agreed to purchase a portion of the NMMA supplemental water (determined according to the percentage of completion of the project and rising to a total of 417 AFY at such time as its service area is fully developed). Woodlands MWC has also agreed to pay a portion of the operating costs, capital costs and replacement costs of the project based on the amount of water purchased by Woodlands MWC relative to the total amount purchased from the City of Santa Maria. Woodlands MWC also has the right to exercise an option for an additional 300 AFY from the Nipomo supplemental water project at a future date.

Twenty-four AFY of recycled water was used in 2008 to partially irrigate the golf course. As more residential units are completed, increased quantities of wastewater will be available for recycling. The build-out flow of the WWTP is 774 AFY. Well water will continue to be required during periods in which the recycled water available is less than the golf course demand.

Water quality discussion is similar to that described for GSWC. The most recent Consumer Confidence Report indicated that Woodlands MWC supplied water that met both primary and secondary drinking water standards. One of the wells exceeds the standards for iron, but mixing with water from other wells produces water that meets the iron standard.

ConocoPhillips

Source: *2008, 2009, and 2010 NMMA Annual Reports and 2005 Santa Maria Groundwater Litigation Stipulation*

ConocoPhillips uses water for industrial operations at its refinery on the Nipomo Mesa. Water demand has decreased in recent years due to infrastructure changes resulting in more water-efficient operations. Planned expansion will increase water demand, but demand will remain less than historical peak pumping rates. Existing and forecast demands are summarized in Table 4.35.

ConocoPhillips uses groundwater for 100 percent of supply requirements. Though it is a party to the Santa Maria Groundwater stipulation, it is not required to participate in the development of supplemental water. It has rights to reasonable and beneficial use of

Table 4.35 Golden State Water Company, Nipomo CSD, Rural Water Company, and Conoco-Phillips Demand and Supply

	Nipomo Mesa Management Area				
	Golden State Water Company [3]	**Nipomo CSD[3]**	**Rural Water Company[4]**	**Woodlands Mutual Water Company[3]**	**Conoco-Phillips[3]**
Demand					
Existing Demand (AFY)	1,060[4]	2,698[6]	720[4]	850[4]	1,200[4]
Forecast Demand (AFY)	1,750-1,944[5]	2,984	Not available	1,440-1,600[5]	1,260-1,400[5]
Supply					
Nipomo supplemental water project (AFY)[1]	208	2,167	208	417	0
Nipomo Mesa Hydrologic Sub-area (part of Santa Maria Valley Groundwater Basin) (AFY)[2]	852	457	462	405	1,400
Other Groundwater Supply Sources (AFY)	0	0	0	0	0
Recycled Water (AFY)	0	60-74	49-50	24-28	0
SWRCB Water Diversions (AFY)	0	0	0	0	0
Total Supply (AFY)	**1,060**	**2,698**	**720**	**850**	**1,200**

Notes:

1. Nipomo supplemental water project includes Nipomo CSD, Woodlands MWC, Golden State Water Company, and Rural Water Company. Nipomo CSD will receive approximately 1,667 AFY and has reserved an additional 500 AFY. The other three will receive 833 AFY.
2. For the NMMA purveyors, the groundwater supply was calculated as the difference between the current demand and the other sources of supply (e.g. recycled water, the Nipomo supplemental water project).
3. Part of the Nipomo Mesa Management Area (NMMA)
4. 2010 Annual Monitoring Report Nipomo Mesa Management Area. 2008 and 2009 demands listed below for reference.
   Golden State Water Company reported 1,380 AFY in 2008 and 1,290 AFY in 2009
   Nipomo CSD reported 2,700 AFY in 2008 and 2,370 AFY in 2010 (NCSD existing demand based on 2010 UWMP)
   Rural Water Company reported 900 AFY in 2008 and 880 AFY in 2009
   Woodlands Mutual Water Company reported 540 AFY in 2008 and 810 AFY in 2009
   ConocoPhillips reported 1,100 AFY in 2008 and 1,200 AFY in 2009

Table 4.35 Golden State Water Company, Nipomo CSD, Rural Water Company, and Conoco-Phillips Demand and Supply					
	Nipomo Mesa Management Area				
	Golden State Water Company [3]	Nipomo CSD[3]	Rural Water Company[4]	Woodlands Mutual Water Company[3]	Conoco-Phillips[3]
Agriculture reported 4,300 AFY in 2008 and 3,800 AFY in 2009 Rural residential reported 1,700 AFY in 2008 and 1,700 AFY in 2009 5. Ten percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand. 6. Nipomo CSD 2010 Urban Water Management Plan					

groundwater without limitation, except in the event of a severe water shortage, as defined in the stipulation.

Water quality discussion is similar to that described for GSWC. One of the ConocoPhillips wells reported a high (1,000 mg/L) TDS value. The well is used for industrial processing.

Rural Users

2008, 2009, and 2010 NMMA Annual Reports

Rural land uses within the NMMA are made up primarily of residential land uses (single family, suburban, and rural). Groundwater production was estimated for rural landowners not served by a purveyor. The total estimated production for the rural landowners is 1,950 AF for 2010.

Agricultural Users

2008, 2009, and 2010 NMMA Annual Reports

The estimated groundwater production for agricultural crops in the NMMA is 2,800 AF for 2009, computed by multiplying the crop area and the crop specific unit production (Table 3-4). A detailed explanation of the methodology used for this estimate is provided in Appendix E of the 2010 NMMA Annual Report.

Table 4.36 Agricultural Demand

Crop Type	2010 Area (acres)	2010 Unit Production (ac-ft/acre)	2010 Production (ac-ft/year)
Deciduous	2	2.5	5
Pasture	2	2.8	6
Vegetable rotational	225	2.0	450
Avocado and Lemon	277	1.6	440
Strawberries	1,393	1.1	1,540
Nursery	332	1.1	360
Un-irrigated Ag Land	356	0.0	0
Total	**2,587**		**2,800(1)**

Notes:
1. This number has been rounded to reflect accuracy in estimation.

NMMA Water Demand and Supply Summary

Table 4.37 NMMA Demand and Supply

	Nipomo Mesa Management Area						
	Golden State Water Company (4)	**Nipomo CSD(4)**	**Rural Water Company(4)**	**Woodlands Mutual Water Company(4)**	**Conoco-Phillips(4)**	**Agriculture (4)**	**Rural(4)**
Demand							
Existing Demand (AFY)	1,060(5)	2,698(7)	720(5)	850(5)	1,200(5)	2,800(5)	1,950(5)
Forecast Demand (AFY)	1,750 - 1,944(6)	2,984	Not available	1,440 - 1,600(6)	1,260 - 1,400(6)	2,800 - 4,300	1,700 – 1,950
Supply							
Nipomo supplemental water project (AFY)(1)	208	2,167	208	417	0	0	0
Nipomo Mesa Hydrologic Sub-area (part of Santa Maria Valley Groundwater Basin) (AFY)(2)	852	457	462	405	1,400	4,300	1,950
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	0	0
Recycled Water (AFY)	0	60-74	49-50	24-28	0	0	0
SWRCB Water Diversions (AFY)	0	0	0	0	0	(3)	(3)
Total Supply (AFY)	**1,060**	**2,698**	**720**	**850**	**1,400**	**Uncertain**	**Uncertain**

Notes:
1. Nipomo supplemental water project includes Nipomo CSD, Woodlands MWC, Golden State Water Company, and Rural Water Company. Nipomo CSD will receive approximately 1,667 AFY and has reserved an additional 500 AFY. The other three will receive 833 AFY.
2. For the NMMA purveyors, the groundwater supply was calculated as the difference between the current demand and the other sources of supply (e.g. recycled water, the Nipomo supplemental water project).
3. Diversions do not distinguish type of use. Potentially 1,243 AFY could be diverted for use to either agriculture or rural residential in WPA 7.
4. Part of the Nipomo Mesa Management Area (NMMA)
5. Demand based on 2010 Annual Monitoring Report Nipomo Mesa Management Area. 2008 and 2009 demands listed below for reference.

Table 4.37 NMMA Demand and Supply

	Nipomo Mesa Management Area						
	Golden State Water Company (4)	Nipomo CSD(4)	Rural Water Company(4)	Woodlands Mutual Water Company(4)	Conoco-Phillips(4)	Agriculture (4)	Rural(4)

Golden State Water Company reported 1,380 AFY in 2008 and 1,290 AFY in 2009
Nipomo CSD reported 2,700 AFY in 2008 and 2,370 AFY in 2010 (NCSD existing demand based on 2010 UWMP)
Rural Water Company reported 900 AFY in 2008 and 880 AFY in 2009
Woodlands Mutual Water Company reported 540 AFY in 2008 and 810 AFY in 2009
ConocoPhillips reported 1,100 AFY in 2008 and 1,200 AFY in 2009
Agriculture reported 4,300 AFY in 2008 and 3,800 AFY in 2009
Rural residential reported 1,700 AFY in 2008 and 1,700 AFY in 2009

6. Ten percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand.
7. Nipomo CSD 2010 Urban Water Management Plan

4.6.7.2.7 *Santa Maria Valley Management Area (SMVMA)*

Rural Users

The water demand in the San Luis Obispo section of SMVMA is primarily classified as agricultural demand (Luhdorff and Scalmanini, 2009). Based on the County Land Use GIS, the existing rural water demand in SMVMA is approximately 37 AFY and future demand is approximately 110 AFY. Both existing and future rural demand is less than 0.5 percent of the total demand for the SMVMA within San Luis Obispo County.

Agricultural Users

In 2008, the crops within the San Luis Obispo portion of SMVMA consisted of approximately 9,649 acres of vegetables, 798 acres of strawberries, and 63 acres of nurseries. The 2008 SMVMA Annual Report established annual applied crop water duties for these crop groups of 2.50, 1.55, and 2.1 AF/Ac/Yr, respectively (Luhdorff and Scalmanini, 2009). Based on the applied water duties established in the SMVMA 2008 Annual Report and the crop acreage, the existing agricultural water demand would be approximately 25,540 AFY. The future agricultural water demand in SMVMA is not expected to change significantly from existing water usage. These users pump groundwater from unconsolidated alluvial deposits (Quaternary Alluvium, Paso Robles Formation, and Careaga Sand), which are part of Santa Maria Valley Groundwater Basin.

4.6.7.2.8 *South Coast WPA 7 Water Demand and Supply Summary*

Table 4.38 South Coast WPA 7 Demand and Supply

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach [1]	Arroyo Grande [1]	Grover Beach [1]	Oceano CSD[1]	Agriculture	Rural	Golden State Water Company[16]	Nipomo CSD[16]	Rural Water Company[16]	Woodlands Mutual Water Company[16]	Conoco Phillips[16]	Agriculture[16]	Rural[16]	Agriculture /Rural	Agriculture	Rural	
Demand																		
Existing Demand (AFY)	410	1,944[2]	2,956[2]	1,787[2]	855[2]	2,056[2][3]	38	1,060[17]	2,698[23]	720[17]	850[17]	1,200[17]	2,800[17]	1,950[17]	25,540/37	19,920	1,480	
Forecast Demand (AFY)	434-482	2,679-2,977[19]	3,735-4,150[19]	1,892-2,500[19]	1,277-1,419[19]	2,742	36	1,750-1,944[19]	2,984	Not Available	1,440-1,600[19]	1,260-1,400[19]	2,800-4,300	1,950	25,540/110	16,610-23,830	1,990-2,160	
Supply																		
State Water Project (AFY)[4]	0	1,240[5]	0	0	495[6]	0	0	0	0	0	0	0	0	0	0	0	0	
Lopez Lake Reservoir (AFY)	0	896	2,290	800	303	0	0	0	0	0	0	0	0	0	0	0	0	
Edna Valley Sub-basin (AFY)[7]	410	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pismo Creek Valley Sub-basin (AFY)[8]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Arroyo Grande Plain Hydrologic Sub-area (part of Santa Maria Valley Groundwater Basin (AFY)[9]	0	700	1,202	1,198+225[14]	900	5,300[9]	36	0	0	0	0	0	0	0	0	Uncertain	Uncertain	
Arroyo Grande Valley Sub-basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Uncertain	Uncertain	

Table 4.38 South Coast WPA 7 Demand and Supply

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach [1]	Arroyo Grande [1]	Grover Beach [1]	Oceano CSD[1]	Agriculture	Rural	Golden State Water Company[16]	Nipomo CSD[16]	Rural Water Company[16]	Woodlands Mutual Water Company[16]	Conoco Phillips[16]	Agriculture[16]	Rural[16]	Agriculture /Rural	Agriculture	Rural	
Agricultural Land Conversion Credit (AFY)[10]	0	0	112	209	0	0	0	0	0	0	0	0	0	0	0	0	0	
Transfers (AFY)[11]	0	0	100	0	-100	0	0	0	0	0	0	0	0	0	0	0	0	
Pismo Formation outside the NCMA (AFY)	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0	Uncertain	Uncertain	
Nipomo supplemental water project (AFY)[12]	0	0	0	0	0	0	0	208	2,167	208	417	0	0	0	0	0	0	
Nipomo Mesa Hydrologic Sub-area (part of Santa Maria Valley Groundwater Basin) (AFY)[13]	0	0	0	0	0	0	0	852	457	462	405	1,400	4,300	1,950	0	Uncertain	Uncertain	
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,540/37	Uncertain	Uncertain	
Recycled Water (AFY)	87[18]	0	0	0	0	0	0	0	60-74	49-50	24-28	0	0	0	0	0	0	
SWRCB Water Diversions (AFY)	0	0	0	0	0	[15]	[15]	0	0	0	0	0	[15]	[15]	[15]	0	0	
Total Supply (AFY)	**482**	**2,836**	**3,794**	**2,432**	**1,598**	**Uncertain**	**Uncertain**	**1,060**	**2,698**	**720**	**850**	**1,400**	**Uncertain**	**Uncertain**	**Uncertain**	**Uncertain**	**Uncertain**	
Environmental Water Demand																		

Table 4.38 South Coast WPA 7 Demand and Supply

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach (1)	Arroyo Grande (1)	Grover Beach (1)	Oceano CSD(1)	Agriculture	Rural	Golden State Water Company(16)	Nipomo CSD(16)	Rural Water Company(16)	Woodlands Mutual Water Company(16)	Conoco Phillips(16)	Agriculture(16)	Rural(16)	Agriculture /Rural	Agriculture	Rural	
Environmental Water Demand (AFY)(20)(22)																		32,960
Unimpaired Mean Annual Discharge (AFY)(21)(22)																		49,100

Notes:

1. Part of the Northern Cities Management Area (NCMA)
2. 2010 Annual Monitoring Report Northern Cities Management Area, Table 1. 2009 and 2008 demands listed below for reference.
   Pismo Beach reported 2,039 AFY in 2009 and 2,208 AFY in 2008
   Arroyo Grande reported 3,315 AFY in 2009 and 3,579 AFY in 2008
   Grover Beach reported 1,941 AFY in 2009 and 2,051 AFY in 2008
   Oceano CSD reported 885 AFY in 2009 and 933 AFY in 2008
   Agriculture reported 2,742 AFY in 2009 and 2008
3. Rural residential reported 36 AFY in 2009 and 2008. Agriculture is grouped in a category referred to as "Applied Irrigation" which is private water used for non domestic purposes. In the NCMA, Applied Irrigation demands are defined by agriculture and irrigated turf grass at schools and a golf course. Of the 2,056 AFY Applied Irrigation demand, agriculture likely accounted for 1,933 AFY (or 94 percent).
4. State Water Project average allocation assumed 66 percent of contract water service amount.
5. 140 AFY of the 1,240 AFY contracted amount has been allocated for Pismo Ranch.
6. Oceano CSD has a 750 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 495 AFY.
7. Edna Valley Sub-basin estimated safe basin yield is 4,000 AFY and all pumping is for urban, agricultural, rural users, golf courses, and CSA 18.
8. There is no estimate of the Pismo Creek Valley Sub-basin (basin-wide yield). The yield of the alluvial basin in the Spanish Spring ranch area has been estimated at 200 AFY.
9. Safe yield of 9,500 AFY with subdivisions for applied irrigation (5,300 AFY), subsurface outflow to the ocean (200 AFY), and urban use (4,000 AFY). The 2002 Groundwater Management Agreement safe yield allotment for urban use is broken down per the numbers shown.
10. 2002 Settlement Agreement provides that groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses.
11. Arroyo Grande has an active agreement to purchase 100 AFY of Oceano CSD supplies from groundwater or Lopez Lake water. This temporary agreement ends in 2014.
12. Nipomo supplemental water project includes Nipomo CSD, Woodlands MWC, Golden State Water Company, and Rural Water Company. Nipomo CSD will receive approximately 1,667 AFY and has reserved an additional 500 AFY. The other three will receive 833 AFY.
13. For the NMMA purveyors, the groundwater supply was calculated as the difference between the current demand and the other sources of supply (e.g. recycled water, Nipomo supplemental water project).
14. Non-potable groundwater pumped from irrigation wells used on the State Parks Department golf course and a City park. The portion of the 225 AFY attributed to the golf course predates the Gentlemen's Agreement. The portion for the park is a substitute for preexisting agricultural use on the park site.
15. Diversions do not distinguish type of use. Potentially 1,243 AFY could be diverted for use to either agriculture or rural residential in WPA 7.
16. Part of the Nipomo Mesa Management Area (NMMA)
17. 2010 Annual Monitoring Report Nipomo Mesa Management Area. 2008 and 2009 demands listed below for reference.
   Golden State Water Company reported 1,380 AFY in 2008 and 1,290 AFY in 2009
   Nipomo CSD reported 2,700 AFY in 2008 and 2,370 AFY in 2010 (NCSD existing demand based on 2010 UWMP)
   Rural Water Company reported 900 AFY in 2008 and 880 AFY in 2009
   Woodlands Mutual Water Company reported 540 AFY in 2008 and 810 AFY in 2009
   ConocoPhillips reported 1,100 AFY in 2008 and 1,200 AFY in 2009
   Agriculture reported 4,300 AFY in 2008 and 3,800 AFY in 2009
   Rural residential reported 1,700 AFY in 2008 and 1,700 AFY in 2009
18. The golf course receives all of the WWTP's recycled water effluent for irrigation use (2009 - Range: 59,000-134,000 gpd, average flow: 78,000 gpd; permitted 120,000 gpd as a monthly average)
19. Ten percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand, except for Grover Beach, which assumed 20% additional reduction.

Table 4.38 South Coast WPA 7 Demand and Supply

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach (1)	Arroyo Grande (1)	Grover Beach (1)	Oceano CSD(1)	Agriculture	Rural	Golden State Water Company(16)	Nipomo CSD(16)	Rural Water Company(16)	Woodlands Mutual Water Company(16)	Conoco Phillips(16)	Agriculture(16)	Rural(16)	Agriculture /Rural	Agriculture	Rural	

20. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
21. Mean daily flow values from stream gauging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
22. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.
23. Nipomo CSD 2010 Urban Water Management Plan.

4.6.7.3 Huasna Valley WPA 8

The water supply sources for this WPA include the Huasna Valley Groundwater Basin, other groundwater supply sources, and State Board water diversions.

4.6.7.4 Urban Users

WPAs 8, 9, 10, 11, and 15 do not have urban demand because there are no large population centers in these WPAs.

4.6.7.4.1 *Rural Users*

For WPA 8, the existing annual rural water demand is 90 AFY and the range of projected future demand is 360 to 450 AFY. The majority of existing rural parcels identified in WPA 8 are classified as developed rural lands. The majority of vacant parcels in WPA 8 that could be converted to rural residential in the future are vacant parcels with rural land use designations.

4.6.7.4.2 *Agricultural Users*

The existing annual applied water for WPA 8 is approximately 1,550 AFY. The existing crops in this area include citrus, deciduous, vegetables, and vineyards. The projected future annual applied water for WPA 8 ranges from approximately 2,060 to 2,820 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of nursery, pasture, and vineyards.

4.6.7.4.3 *Environmental*

The unimpaired mean annual discharge for WPA 8 inclusive of the water management areas is approximately 34,220 AFY and environmental water demand of 25,020 AFY. WPA 8 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. Some of the creeks in these sub-watersheds included Huasna River and Alamo Creek.

4.6.7.4.4 *Huasna Valley WPA 8 Water Demand and Supply Summary*

Table 4.39 Huasna Valley WPA 8 Demand and Supply

	Urban	Agriculture	Rural	Environmental
Demand				
Existing Demand (AFY)	0	1,550	90	
Forecast Demand (AFY)	0	2,060-2,820	360-450	
Supply				
Huasna Valley Basin (AFY)(1)	0	Uncertain	Uncertain	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	(2)	(2)	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)(3)(5)				25,020
Unimpaired Mean Annual Discharge(AFY)(4)(5)				34,220

Notes:
1. There is no existing estimate of basin safe yield or hydrologic budget items.
2. Diversions do not distinguish type of use. Potentially 48 AFY could be diverted for use to either agriculture or rural residential.
3. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
4. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
5. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.6.7.5 Cuyama Valley WPA 9

The water supply sources for this WPA include the Cuyama Valley Groundwater Basin, other groundwater supply sources, and State Board water diversions.

4.6.7.5.1 *Urban Users*

WPAs 8, 9, 10, 11, and 15 do not have urban demand because there are no large population centers in these WPAs.

4.6.7.5.2 *Rural Users*

For WPA 9, the existing annual rural water demand is 10 AFY and the range of projected future demand is 80 to 100 AFY. The majority of existing rural parcels identified in WPA 9 are classified as developed rural lands. The majority of vacant parcels in WPA 9 that could be converted to rural residential in the future are vacant parcels with rural land use designations.

4.6.7.5.3 *Agricultural Users*

The existing annual applied water for WPA 9 is approximately 28,870 AFY. The existing crops in this area include deciduous, vegetables, and vineyards. The projected future annual applied water for WPA 9 ranges from approximately 25,320 to 32,410 AFY. The existing annual applied water falls within the range of projected future agricultural demand.

4.6.7.5.4 *Environmental*

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.7.5.5 *Cuyama Valley WPA 9 Water Demand and Supply Summary*

Table 4.40 Cuyama Valley WPA 9 Demand and Supply

	Urban	Agriculture	Rural	Environmental[2]
Demand				
Existing Demand (AFY)	0	28,870	10	
Forecast Demand (AFY)	0	25,320-32,410	80-100	
Supply				
Cuyama Valley Basin (AFY)[1]	0	10,000[1]	10,000[1]	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)				Uncertain
Unimpaired Mean Annual Discharge(AFY)				Uncertain

Notes:
1. Demands include demands in the San Luis Obispo County portion of the basin and the remaining water planning area. Perennial yield for the entire basin has been estimated between 9,000 and 13,000 AFY. Recent work reported a perennial yield on the order of 10,000 AFY. 22 percent of basin is in San Luis Obispo County. Remainder of the basin resides in Santa Barbara, Kern, and Ventura County. There is no separate yield estimate for the San Luis Obispo County portion.
2. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8 Inland Sub-Region

This section describes water supply, water demand, and water quality for WPAs 10 through 16:

- Carrizo Plain WPA 10: Overlying users
- Rafael/Big Spring WPA 11: Overlying users
- Santa Margarita WPA 12: County Service Area 23 and Santa Margarita Ranch
- Atascadero/Templeton WPA 13: Templeton CSD, Atascadero MWC, Garden Farms Community Water District
- Salinas/Estrella WPA 14: San Miguel CSD, Camp Roberts, and County Service Area 16 (Shandon)
- Cholame WPA 15: Overlying Users
- Nacimiento WPA 16: Oak Shores and Heritage Ranch CSD

The majority of existing rural parcels identified in the Inland Sub-Region are classified as developed rural lands. The majority of vacant parcels in these WPAs that could be converted to rural residential in the future are vacant parcels with rural land use designations.

4.6.8.1 Carrizo Plain WPA 10

The primary source of water supply for this WPA is the Carrizo Plain Groundwater Basin, and to a limited extent, other groundwater basins and State Board water diversions.

4.6.8.1.1 *Urban Users*

WPAs 8, 9, 10, 11, and 15 do not have urban demand because there are no large population centers in these WPAs.

4.6.8.1.2 *Potential Overlying Users*

Source*: John Kessler, California Energy Commission (excerpts from Carrizo Energy Solar Farm); John Larson, URS Corporation (SunPower Project); Tim Cleath, Cleath-Harris Geologist, Inc. (SunPower Project); SunPower - California Valley Solar Ranch Environmental Impact Report (EIR), Topaz Solar Farm (First Solar) Draft Environmental Impact Report.*

The Carrizo Plain WPA has no large water purveyors. Water usage in this WPA is analyzed as overlying use. Due to the age of previous water studies for this area, potential demands and groundwater characterization from water studies completed for two proposed solar power projects are included in this discussion. The modeling completed for these two projects analyzes a significant portion of the Carrizo Plain Groundwater Basin.

These two large solar farms are referred to as the Topaz Solar Farm, and the SunPower-California Valley Solar Ranch. These proposed projects are 550 and 250 megawatt solar power plants, respectively. Both projects propose to use photovoltaic technology, which will consume less water than steam-producing plants. During operation of the facilities, (long-term) water demand would be required for washing solar panels if needed, potable water for employees, service water for general site uses including irrigation, and fire protection.

Table 4.41 Solar Farm Demand Estimates

Project	Demand During Construction	Operations
Topaz Solar Farm	48-273	4.5
Sun Power	41	9.3
	Total	**13.8**

The reported safe yield of the Carrizo Plain Groundwater Basin reported by was 600 AFY (based on water demand in 1954). The Kemnitzer safe yield was estimated at 59,000 AFY (based on 1967 inflow/outflow analysis). Taking into consideration the methodologies used in previous studies, current and historical groundwater levels, and water quality, the solar project EIRs' water analyses conclude that a more reasonable safe yield on which to base planning decisions is between 8,000 – 11,000 AFY.

Groundwater quality has a wide range of qualities, as noted in the groundwater resources discussion for the Carrizo Plain. Additionally, according to the Sun Power EIR, the results of groundwater quality testing conducted on samples for the proposed Sun Power solar project well indicate TDS content of 4,940 mg/L at the proposed project site. The EIR concludes that the groundwater quality, with treatment (reverse osmosis is proposed), is useable for the proposed project, particularly considering historic land uses of the area and understanding of aquifer characteristics. Similarly, according to the Topaz Farm EIR, the results of groundwater quality testing conducted on samples for the proposed Topaz Farm solar project well indicate water from the lower aquifer is not suitable for drinking water without treatment and primarily exceed the drinking water standard for nitrate.

4.6.8.1.3 *Rural Users*

The estimated rural demand for the Carrizo Plain, WPA 10, is 210 AFY and future demand ranges from 9,610 to 12,740. The majority of existing rural parcels identified in WPA 10 are classified as developed rural lands. According to existing zoning, it is possible that Carrizo Plain could have extensive residential development. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors.

4.6.8.1.4 *Agricultural Users*

The existing annual applied water for WPA 10 is approximately 800 AFY. The existing crops in this area are primarily citrus crops. The projected future annual applied water for WPA 10 ranges from approximately 680 to 890 AFY. The existing annual applied water falls within the range of projected future agricultural demand.

4.6.8.1.5 *Environmental*

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8.1.6 *Carrizo Plain WPA 10 Water Demand and Supply Summary*

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Table 4.42 Carrizo Plain WPA 10 Demand and Supply

	Urban	Solar Power[1]	Agriculture	Rural	Environmental[5]
Demand					
Existing Demand (AFY)	0	0	800	210	
Forecast Demand (AFY)	0	13.8	680-890	9,610-12,740[2]	
Supply					
Carrizo Plain Basin (AFY)[3]	0	0	800	210	
Other Groundwater Supply Sources (AFY)	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	[4]	[4]	
Total Supply (AFY)	**0**	**Uncertain[1]**	**800**	**210**	
Environmental Water Demand					
Environmental Water Demand (AFY)					Uncertain
Unimpaired Mean Annual Discharge(AFY)					Uncertain

Notes:
1. Potential demands from two identified future solar power projects (Topaz Solar Farm and Sun Power-California Valley Solar Ranch), which have yet to be approved.
2. Carrizo Plain rural demand projections are based on existing zoning, which includes the potential for extensive California Valley development. The actual development may be much lower than the range shown due to water quality and other considerations.
3. The safe seasonal yield was estimated at 8,000 - 11,000 AFY.
4. Diversions do not distinguish type of use. Potentially 81 AFY could be diverted for use to either agriculture or rural residential.
5. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8.2 Rafael/Big Spring WPA 11

The primary source of water supply for this WPA is the Rafael Valley and Big Spring Valley Groundwater Basins, and to a limited extent, State Board water diversions.

4.6.8.2.1 *Urban Users*

WPAs 8, 9, 10, 11, and 15 do not have urban demand because there are no large population centers in these WPAs.

4.6.8.2.2 *Rural Users*

There is minimal or no existing rural demand for WPA 11, but in the future, if water is available and development occurs, there could be from approximately 470 to 620 AFY.

4.6.8.2.3 *Agricultural Users*

There are minimal or no agricultural demands in this WPA.

4.6.8.2.4 *Environmental*

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8.2.5 *Rafael/Big Spring WPA 11 Water Demand and Supply Summary*

Table 4.43 Rafael/Big Spring WPA 11 Demand and Supply

	Urban	Agriculture	Rural	Environmental[4]
Demand				
Existing Demand (AFY)	0	Minimal	Minimal	
Forecast Demand (AFY)	0	0	470-620	
Supply				
Rafael Valley Basin (AFY)[1]	0	Uncertain[2]	Uncertain[2]	
Big Spring Area Basin[1]	0	Uncertain[2]	Uncertain[2]	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	[3]	[3]	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)				Uncertain
Unimpaired Mean Annual Discharge(AFY)				Uncertain

Notes:
1. There is no information describing the basin yield.
2. It is uncertain which basins are used and the quantity of water pumped from each basin. Future studies should invest the resources to quantify the location and use of each basin.
3. Diversions do not distinguish type of use. Potentially 59 AFY could be diverted for use to either agriculture or rural residential.
4. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8.3 Santa Margarita WPA 12

The primary source of water supply for this WPA is the Santa Margarita, Rinconada, and Pozo Valley Groundwater Basins, Santa Margarita Creek Alluvial Aquifer, and to a limited extent other groundwater supplies and State Board water diversions.

4.6.8.3.1 *Santa Margarita Ranch*

Source: *Santa Margarita Ranch Agricultural Residential Cluster Subdivision Project and Future Development Program EIR*

The Santa Margarita Ranch (Ranch) encompasses approximately 14,000 acres and is located immediately east of U.S. Highway 101, and surrounds the community of Santa Margarita. The land currently functions as ranch and vineyard with minimal residential water use. Approximately 96 percent of the water is used by vineyards and other farm operations. An Agricultural Residential Cluster Subdivision (ARCS) is proposed, including 3,778 acres near the middle of the Ranch, southeast of the community of Santa Margarita. A Future Development Program (FDP) is planned in various locations throughout the balance of the property. The proposed ARCS includes 111 large-lot residential units and agricultural reserves. The FDP covers a variety of development types, including 402 residences, a golf course, guest ranch, wineries, and other commercial and recreational facilities.

The existing Ranch water use is estimated at 1,621 AFY based on land use water factors. Planned expansion of orchards and vineyards will increase water use to 4,263 AFY. The proposed development's EIR states that the ARCS would increase water demand by 161 AFY. Implementation of the FDP would add an additional 1,466 AFY of demand. Based on these values, the total build-out demand is 5,890 AFY.

Existing Santa Margarita Ranch water demands are supplied entirely by groundwater. The Ranch property is currently served by approximately 27 wells, located primarily along the east side of the Ranch, west of West Pozo Road. Individual well yields typically range between 200 and 400 gpm with some wells capable of rates of up to 1,000 gpm. Supplemental water supply options for Santa Margarita Ranch are State Water and Nacimiento water.

Environmental water requirements may limit the use of groundwater to meet the needs of expanded agricultural production and eventual residential development. Trout and Rinconada Creeks, which are upper tributaries of the Salinas River, are important spawning habitat for steelhead, a federally declared endangered species. The National Marine Fisheries Service (NMFS) has previously received complaints that the creeks have allegedly been dewatered as a result of vineyard development on Ranch property.

TDS concentrations in wells in the area are relatively high. Nitrates have measured concentrations below the MCL of 45 mg/L. Total coliform, fecal coliform, and Escherichia

coli data have been found to be suggestive, although not conclusive, of small impacts on both shallow and deep aquifer wells from local wastewater disposal systems.

4.6.8.3.2 *County Service Area 23*

Source: 2003 CSA 23 Water Master Plan, several County staff memos, County Public Works-compiled consumption data and Planning Department land use projections

County Service Area 23 (CSA 23) provides water service to the community of Santa Margarita. Santa Margarita has a population of approximately 1,400 and covers an area of approximately 265 acres. CSA 23 supplies the community with water via groundwater wells located in the center and south-eastern corner of the community. The community is completely reliant on groundwater for its supply.

In 2009, the CSA served a total of 525 connections, predominantly residential. Future build-out is estimated to be 619 connections. CSA 23 receives its water supply from two wells; Well No. 3 and No. 4. Well No. 3 is a deep, fractured-rock well and Well No. 4 is a relatively shallow well that pumps from the alluvial deposits of Santa Margarita Creek. Two other wells, No. 1 and No. 2, are near No. 4, but are not built to current health standards, and can only be used in an emergency with a boil water order.

During periods of low seasonal rainfall, water level in the shallow well typically drops, triggering various voluntary conservation methods. Although the community is better than 85 percent built out according to the current general plan, there is concern that existing groundwater supplies may not be adequate to supply additional residents and that they are inadequate during periods of less than normal rainfall. There is also the concern that the reliance on essentially a single supply source (groundwater) may be placing the community in a tenuous public health and safety position.

The 2003 Master Plan recommended securing an additional 100 AFY of reliable supply. Based on community input, concerns over cost and need, CSA 23 is currently investigating several options to secure an additional source of water to be used only during a drought or other emergency. These include State Water, Lake Nacimiento water or additional groundwater wells. Any one of these sources could potentially supply water demand at build-out given the community's support.

CSA 23 has been able to deliver water that meets State Drinking Water Standards.

4.6.8.3.3 *Rural Users*

The existing rural demand for WPA 12 is approximately 240 AFY and future demand ranges from approximately 450 to 520 AFY.

Table 4.44 Santa Margarita Area Demand and Supply		
	CSA 23	**Santa Margarita Ranch**
Demand		
Existing Demand (AFY)	164	1,621
Forecast Demand (AFY)	173-192[4]	5,301-5,890[4]
Supply		
Santa Margarita Valley Basin (AFY)[1]	164	1,621
Rinconada Valley Basin[2]	0	0
Pozo Valley Basin[3]	0	0
Other Groundwater Supply Sources (AFY)	0	0
SWRCB Water Diversions (AFY)	0	22
Total Supply (AFY)	**164**	**1,643**

Notes:
1. No comprehensive studies to determine the perennial yield are known to exist. However, some reports indicate an average annual yield may range between 400 to 600 AFY.
2. There is no information describing the basin yield.
3. The safe available storage has been reported to be 1,000 AFY. There is insufficient information to characterize water availability.
4. Ten percent water conservation assumed for the low end of the forecast build-out demand.

4.6.8.3.4 *Agricultural Users*

The existing annual applied water for WPA 12 is approximately 1,770 AFY. The existing crops in this area include alfalfa, deciduous, pasture, and vineyards. The projected future annual applied water for WPA 12 ranges from approximately 1,720 to 2,680 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, deciduous, pasture, and vineyards.

4.6.8.3.5 *Environmental*

The unimpaired mean annual discharge for WPA 12 inclusive of the water management areas is approximately 46,630 AFY and environmental water demand of 32,850 AFY. WPA 12 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The Salinas River is the major river in these sub-watersheds.

4.6.8.3.6 *Santa Margarita WPA 12 Water Demand and Supply Summary*

Table 4.45 Santa Margarita WPA 12 Demand and Supply

	CSA 23	Santa Margarita Ranch	Agriculture	Rural	Environmental
Demand					
Existing Demand (AFY)	164	1,621	1,770	240	
Forecast Demand (AFY)	173-192[6]	5,301-5,890[6]	1,720-2,680	450-520	
Supply					
Santa Margarita Valley Basin (AFY)[1]	164	1,621	Uncertain[2]	Uncertain[2]	
Rinconada Valley Basin[3]	0	0	Uncertain[2]	Uncertain[2]	
Pozo Valley Basin[4]	0	0	Uncertain[2]	Uncertain[2]	
Other Groundwater Supply Sources (AFY)	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	22	[5]	[5]	
Total Supply (AFY)	**164**	**1,643**	**Uncertain**	**Uncertain**	
Environmental Water Demand					
Environmental Water Demand (AFY)[7][9]					32,850
Unimpaired Mean Annual Discharge(AFY)[8][9]					46,630

Notes:
1. No comprehensive studies to determine the perennial yield are known to exist. However, some reports indicate an average annual yield may range between 400 to 600 AFY.

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Table 4.45 Santa Margarita WPA 12 Demand and Supply					
	CSA 23	**Santa Margarita Ranch**	**Agriculture**	**Rural**	**Environmental**
2. It is uncertain which basins are used and the quantity of water pumped from each basin. Future studies should invest the resources to quantify the location and use of each basin. 3. There is no information describing the basin yield. 4. The safe available storage has been reported to be 1,000 AFY. There is insufficient information to characterize water availability. 5. Diversions do not distinguish type of use. Potentially 417 AFY could be diverted for use to either agriculture or rural residential. 6. Ten percent water conservation assumed for the low end of the forecast build-out demand. 7. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species. 8. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation. 9. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.					

4.6.8.4 Atascadero/Templeton WPA 13

The primary source of water supply for this WPA is the Atascadero Groundwater Sub-basin (Paso Robles Formation and Salinas River Underflow), recycled water, Nacimiento Water Project, and to a limited extent, other groundwater supplies and State Board water diversions.

4.6.8.4.1 *Templeton Community Services District*

Source: *2005 Templeton CSD Water System Master Plan Update, 2010 Paso Robles Groundwater Basin Water Balance Review and Update*

The Templeton Community Services District (Templeton CSD) supplies its customers with domestic water service. Templeton is an unincorporated community located along Highway 101 between the City of Paso Robles and City of Atascadero. Templeton consists of a mix of residential, commercial, agriculture, and recreational areas. The Templeton area has a number of homes on larger lots, and thus exhibits a relatively large per capita water demand as a result.

Population projections are based on only those areas served by, and within, the Templeton CSD service area boundary. Thus, there will likely be discrepancies between these projections and those provided by the County or census data. The existing service area population was estimated at 6,417 persons. Based on the 2005 estimated population of 6,417 persons determined by the Templeton CSD's water service connections, plus 2,180 persons from the commercial mixed-use component, and an additional 900 persons from the residential component, the Templeton CSD's estimated build-out population (within its existing service area boundary) is 9,497 persons. The existing and forecast demands are summarized in Table 4.47 following the discussion on Garden Farms.

The Templeton CSD depends on water from eleven wells that extract water from two groundwater sources: the Paso Robles Formation and the Salinas River Underflow. Nine of the eleven wells that extract water from the Paso Robles Formation are extracting from the Atascadero Groundwater Sub-basin.

The Templeton CSD currently is permitted to extract 500 AFY from the Salinas River Underflow between October 1 and April 1. Two wells tap this aquifer, though only the Smith Well is in service. The Templeton CSD may request from CDPH an extended permit to continue to pump from the river wells through May 15 if sufficient water is available and flowing during that time.

An additional source of water for Templeton CSD comes from their re-use program with disposal of treated wastewater effluent from the Meadowbrook WWTP percolation ponds. This program allows the Templeton CSD to percolate treated effluent into the groundwater basin/Salinas River Underflow and subsequently extract the same amount of water 28 months later. According to the 2005 Water Master Plan, wastewater flow to the

Meadowbrook WWTP at that time was 148,000 gpd (165 AFY) with 30 AF being used to irrigate an alfalfa field. Therefore, the Templeton CSD at that time had been withdrawing approximately an additional 135 AFY from the Salinas River allocation (above the 500 AFY permitted Salinas River underflow). Table 4.46 below (Table 4-3 from the 2005 Water Master Plan) summarizes the existing water supply and allocations for Templeton CSD.

Table 4.46 Summary of Existing Water Supplies for Templeton CSD

	Summer Allocation (AFY) (April 1 through September 30)	Winter Allocation (AFY) (October 1 through March 31)	Total Allocation (AFY)
Paso Robles Formation	Included in total	Included in total	1,700/1,550[(1)]
Salinas River			
Salinas River Underflow	0	500	500
Riparian Rights	No increase to water supply	No increase to water supply	No increase to water supply
Greer Riparian Rights	94 AF	0	94
Re-Use Program	66 AF[(2)]	66 AF[(2)]	132
		Total	**2,246**

Notes:
1. The Templeton CSD can extract water from the Paso Robles Formation any time during the year, however, the Templeton CSD extracts the majority of the water during the summer months when the main river water allocation is not available. The Paso Robles Formation is only used during the winter to help meet peak demands that the Smith Well is unable to meet.
2. Allocation based on the existing wastewater demand minus the irrigated effluent to alfalfa fields minus 2 percent water loss.

Future water supply for the Templeton CSD will likely come from the Nacimiento Water Project (NWP). The Templeton CSD is under contract to receive 250 AFY from the NWP. Templeton CSD plans to receive raw water from the NWP and percolate this water into the Salinas River Underflow, in a similar manner that they percolate effluent from the Meadowbrook WWTP percolation ponds (Selby Pond site). This 250 AFY of percolated NWP water will then be extracted from the Templeton CSD's downstream potable water well field. In addition, the Templeton CSD might divert additional wastewater flows to the Meadowbrook WWTP (which currently flow to the City of Paso Robles WWTP), which will allow them to increase percolation into and extraction from the Salinas River Underflow by as much as 343 AFY. These future water supply provisions are referenced in the 2005 Water Master Plan, and are included as recommendations for future water supply.

Based on the 2005 Water Master Plan, and review of current consumer confidence reports (CCRs), the Templeton CSD's water supply to its customers meets all water quality standards. In general, the river wells have lower total dissolved solid levels than the Atascadero Groundwater Sub-basin; however, all of the wells are below the upper limits of the drinking water standard of 1,000 mg/L. The Templeton CSD's overall aggregate TDS quality to its customers, as reported in the 2004 CCR, was 653 mg/L. This is based on how the Templeton CSD distributes and blends the various water supplies to its customers.

4.6.8.4.2 *Atascadero Mutual Water Company*

Source: *2005 Atascadero MWC UMWP and Draft 2009 Master Water Plan*

The Atascadero Mutual Water Company (Atascadero MWC) is a corporation organized under the laws of California for providing water service to property owners, known as the shareholders, within a geographical service area. Atascadero MWC supplies its customers with domestic water service and fire protection. Atascadero MWC's service boundary includes the City of Atascadero limits and some unincorporated areas (e.g. communities such as the Eagle Ranch Property, the West San Marcos Development, and the area south of Santa Rosa Road known as the Random Oaks area). In 2008, the Atascadero MWC served a population of 30,595 with 10,505 service connections. The Atascadero MWC projects a 2030 population of 37,436.

The City of Atascadero is located along Highway 101, between the City of Paso Robles and City of San Luis Obispo. The City of Atascadero consists of a mix of residential, commercial, agriculture, and recreational areas. Eagle Ranch, a large proposed development on the southwest side of the City of Atascadero, is only partially within Atascadero MWC's service area boundary. Atascadero MWC will serve the existing portion of the development within its boundary and another small portion proposed for inclusion. Adequate water supply for all of Eagle Ranch has yet to be confirmed.

According to Atascadero MWC records and demand forecasts, average annual per capita demand has fluctuated in the range of 188 to 213 over the past decade, with lower water use possibly linked to mandatory conservation measures. It is anticipated that water conservation programs will cause lower per capita demands to become the rule rather than the exception. A per capita demand of 199 gpcd is used to estimate a future peak demand of 7,600 AFY in 2019 with a population of 34,016. Thereafter, conservation measures are predicted to more than compensate for population growth, resulting in a build-out demand of 7,511 AFY in 2030 for a population of 37,436. The existing and forecast demands are summarized in Table 4.47 following the discussion on Garden Farms.

The Atascadero MWC's water source is the Atascadero Groundwater Sub-basin (of the Paso Robles Groundwater Basin) and Salinas River Underflow. Water is pumped from 17 active wells with two additional wells on standby status. Atascadero MWC derives approximately half of its supply from the Atascadero Groundwater Sub-basin, with the remainder coming from the Salinas River Underflow. Atascadero MWC has rights to

3,372 AFY from the Salinas River Underflow. As the Salinas River Underflow is more sensitive to rainfall, during dry years the proportionate withdrawal from the deeper Atascadero Groundwater Sub-basin increases.

The current water supply system is under stress due to the ongoing drought. During the spring of 2009, the Atascadero MWC issued a stage 2 water shortage condition alert when reserve production capacity fell to less than 10 percent of the maximum day demand. Stage 2 mandatory conservation measures include a ban on daytime landscape watering, required alternate irrigation schedules, and a prohibition of irrigation runoff.

The Atascadero MWC is a major partner of the Nacimiento Water Project, having contracted for a 2,000 AFY allotment of this future supply. The water will be used to recharge the groundwater table in the vicinity of the deep wells that pump from the Atascadero Groundwater Sub-basin. The Atascadero MWC is also exploring the expansion of its current well fields.

Atascadero MWC continues to aggressively promote water conservation, as it has since 1993. Atascadero MWC's program has reduced per capita indoor water use and the use of potable water for landscape irrigation. Atascadero MWC provides educational resources on its website, in its offices, and in periodic brochures included with water bills. In 1997, Atascadero MWC signed a memorandum of understanding (MOU) with the California Urban Water Conservation Council (CUWCC) and continues to implement and meet the goals of Best Management Practices for water conservation, including:

- Conservation Rate Structure (i.e. Tier Water Rates)
- Turf conversion rebates
- Lawn aeration rebates
- Sprinkler nozzle replacement rebates
- Irrigation controller rain sensor rebates
- Weather based irrigation controller and soil moisture sensor rebates
- Rainwater harvesting system rebates
- High efficiency clothes washing machine rebates
- High efficiency toilet rebates
- School education programs
- Free seminars on water conserving landscape design and plant selection
- Free landscape/home water surveys
- Annual Water-Conserving Landscape awards

Atascadero MWC is also a member of the Groundwater Guardian Program, Alliance for Water Efficiency, Water Education Foundation, and San Luis Obispo County Partners in Water Conservation.

Atascadero MWC's water supply to its customers meets all primary and secondary water quality standards.

4.6.8.4.3 *Garden Farms Community Water District*

Source: *Garden Farms CWD Well logs and 2007 CCR*

The Garden Farms Community Water District (Garden Farms CWD) provides water to consumers in and around the unincorporated community of Garden Farms, located along the old El Camino Real between Santa Margarita and Atascadero. Garden Farms is a small residential community of 240 residents with 113 water service connections. Besides two small commercial establishments, all connections are residential.

Demand has fluctuated between 48 and 93 AFY over the past four years. The service area is fully built out. Garden Farms CWD draws all of its supply from three wells (though the third well is rarely used) which tap the Atascadero Groundwater Sub-basin. Water levels have dropped several feet in the past year, likely due to the ongoing drought in the region.

Groundwater quality is typical for the sub-basin, with no contaminants exceeding the primary drinking water standards. High levels of manganese (70 ppb reported in 2007) have been detected, but do not currently exceed the secondary drinking water standard of 50 ppb.

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Table 4.47 Garden Farms CWD, Templeton CSD, Atascadero MWC, and Paso Robles Demand and Supply

	Garden Farms CWD	Templeton CSD	Atascadero MWC	Paso Robles[9]
Demand				
Existing Demand (AFY)	48-93	1,682	6,565	4,063
Forecast Demand (AFY)	48-93	2,034-2,260[8]	6,840-7,600[8]	3,728
Supply				
Atascadero Groundwater Sub-basin (AFY)[7]				
Paso Robles Formation (AFY)[1]	48 - 93	1,050[2]	3,193	Included with Salinas River Underflow
Salinas River Underflow (AFY)[1]	0	500[3]	3,372[4]	4,063/3,728[9]
Recycled Water (AFY)[5]	0	132/475	0	0
Other Groundwater Supply Sources (AFY)	0	0	0	0
SWRCB Water Diversions (AFY)	0	0	0	0
Nacimiento Water Project (AFY)[6]	0	250	2,000	0
Total Supply (AFY)	**48-93**	**1,932**	**8,565**	**4,063**

Notes:
1. The perennial yield was estimated to be 16,400 AFY. Extractions from the Sub-basin occur primarily from the Salinas River Underflow and deeper formations. Depending on the estimated use for the Agricultural and Rural sectors, future hydrology and whether additional Nacimiento supplies are utilized, Sub-basin studies are indicating that the perennial yield may be exceeded in the future.
2. Nine of Templeton CSD's wells extract groundwater from the Atascadero Groundwater Sub-basin of the Paso Robles Formation.
3. Templeton CSD is permitted to extract 500 AFY from the Salinas River Underflow between October 1 and April 1.
4. Atascadero MWC rights to 3,372 AFY from Salinas River underflow.

Table 4.47 Garden Farms CWD, Templeton CSD, Atascadero MWC, and Paso Robles Demand and Supply				
	Garden Farms CWD	**Templeton CSD**	**Atascadero MWC**	**Paso Robles[9]**

5. Percolation of treated wastewater effluent into the Salinas River underflow and extraction of the same amount 28 months later. Currently about 132 AFY is percolated and extracted. This could increase to 475 AFY in the future.
6. Nacimiento Water Project is scheduled to go online in 2010.
7. The agencies, County, District, and local land owners intend to actively and cooperatively manage the Paso Robles Groundwater Basin (which includes the Sub-basin) via the development of a Groundwater Management Plan.
8. Ten (10) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand.
9. Paso Robles discussed in Water Planning Area 14 but included here because Paso Robles wells extract water from this water planning area. For the purposes of this analysis, it was assumed that half (4,063 AFY) of the existing demand of 8,126 AFY was extracted from the Salinas River Underflow via the Thunderbird Well Field in WPA 13. Paso Robles is permitted to extract 4,600 AFY from Salinas River Underflow, but not all is pumped from the WPA 13. Part is extracted from within WPA 14. At build-out, it was assumed that Paso Robles would extract half (3,728 AFY) of its total future groundwater supply of 7,456 AFY from the Atascadero Sub-basin.

4.6.8.4.4 *Rural Users*

The existing rural demand for WPA 13 is approximately 1,480 AFY and future demand ranges from 1,810 to 1,930 AFY.

4.6.8.4.5 *Agricultural Users*

The existing annual applied water for WPA 13 is approximately 10,620 AFY. The existing crops in this area include citrus, deciduous, nursery, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 13 ranges from approximately 9,740 to 14,600 AFY. The projected future agricultural demand could exceed existing annual applied water due to increases in acreage of all existing crop groups.

4.6.8.4.6 *Environmental*

The unimpaired mean annual discharge for WPA 13 inclusive of the water management areas is approximately 74,090 AFY and environmental water demand of 41,010 AFY. WPA 13 was divided into two sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The major water bodies in these sub-watersheds include the Salinas River and Paso Robles Creek.

4.6.8.4.7 *Atascadero/Templeton WPA 13 Water Demand and Supply Summary*

Table 4.48 Atascadero/Templeton WPA 13 Demand and Supply							
	Garden Farms CWD	**Templeton CSD**	**Atascadero MWC**	**Paso Robles (12)**	**Agriculture**	**Rural**	**Environmental**
Demand							
Existing Demand (AFY)	48-93	1,682	6,565	4,063	10,620	1,480	
Forecast Demand (AFY)	48-93	2,034-2,260(11)	6,840-7,600(11)	3,728	9,740-14,600	1,810-1,930	
Supply							
Atascadero Groundwater Sub-basin (AFY)(10)							
Paso Robles Formation (AFY)(1)	48-93	1,050(2)	3,193	Included with Salinas River Underflow	(3)	(3)	
Salinas River Underflow (AFY)(1)	0	500(4)	3,372(5)	4,063/ 3,728(12)	745(6)	0	
Recycled Water (AFY)(7)	0	132/475	0	0	0	0	
Other Groundwater Supply Sources (AFY)	0	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	0	(8)	(8)	
Nacimiento Water Project (AFY)(9)	0	250	2,000	0	0	0	

Table 4.48 Atascadero/Templeton WPA 13 Demand and Supply

	Garden Farms CWD	Templeton CSD	Atascadero MWC	Paso Robles (12)	Agriculture	Rural	Environmental
Total Supply (AFY)	**43-93**	**1,932/2,275**	**8,565**	**4,063**	**Uncertain**	**Uncertain**	
Environmental Water Demand							
Environmental Water Demand (AFY)(13)(15)							41,010
Unimpaired Mean Annual Discharge(AFY)(14)(15)							74,090

Notes:

1. The perennial yield was estimated to be 16,400 AFY. Extractions from the Sub-basin occur primarily from the Salinas River Underflow and deeper formations. Depending on the estimated use for the Agricultural and Rural sectors, future hydrology and whether additional Nacimiento supplies are utilized, Sub-basin studies are indicating that the perennial yield may be exceeded in the future.
2. Nine of Templeton CSD's wells extract groundwater from the Atascadero Groundwater Sub-basin.
3. It is assumed that the majority of water supply for rural users and about 13 percent of the supply for agricultural users comes from the Sub-basin.
4. Templeton CSD is permitted to extract 500 AFY from the Salinas River Underflow between October 1 and April 1.
5. Atascadero MWC rights to 3,372 AFY from Salinas River underflow.
6. SWRCB records indicate that 745 AFY could have been diverted from the Salinas River (direct diversion or underflow). It is assumed that the entire amount is used for agriculture.
7. Percolation of treated wastewater effluent into the Salinas River underflow and extraction of the same amount 28 months later. Currently about 132 AFY is percolated and extracted. This could increase to 475 AFY in the future.
8. Diversions do not distinguish type of use. Potentially 1,431 AFY could be diverted for use to either agriculture or rural residential. Diversions were not analyzed as to whether they are within or outside the Sub-basin.
9. Nacimiento Water Project is scheduled to go online in 2010.
10. The agencies, County, District, and local land owners intend to actively and cooperatively manage the Paso Robles Groundwater Basin (which includes the Sub-basin) via the development of a Groundwater Management Plan.
11. Ten (10) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand.
12. Paso Robles discussed in Water Planning Area 14 but included here because Paso Robles wells extract water from this water planning area. For the purposes of this analysis, it was assumed that half (4,063 AFY) of the existing demand of 8,126 AFY was extracted from the Salinas River Underflow via the Thunderbird Well Field in WPA 13. Paso Robles is permitted to extract 4,600 AFY from Salinas River Underflow, but not all is pumped from the WPA 13. Part is extracted from within WPA 14. At build-out, it was assumed that Paso Robles would extract half (3,728 AFY) of its total future

Table 4.48 Atascadero/Templeton WPA 13 Demand and Supply							
	Garden Farms CWD	**Templeton CSD**	**Atascadero MWC**	**Paso Robles (12)**	**Agriculture**	**Rural**	**Environmental**

groundwater supply of 7,456 AFY from the Atascadero Sub-basin.

13. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
14. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
15. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.6.8.5 Salinas/Estrella WPA 14

The primary source of water supply for this WPA is the Paso Robles Groundwater Basin (Paso Robles Formation (and/or alluvium) and Salinas River Underflow), Nacimiento Water Project, and to a limited extent, other groundwater supplies and State Board water diversions.

4.6.8.5.1 *San Miguel Community Services District*

Source: *2002 San Miguel CSD Water Master Plan*

The San Miguel CSD supplies its customers with domestic water service. The unincorporated community of San Miguel is located along Highway 101, north of the City of Paso Robles. According to the 2002 Water Master Plan, the current population within the San Miguel CSD boundary was approximately 1,500 and is expected to increase to 3,742 at build-out (2040) within the existing CSD boundary. The San Miguel CSD service area covers approximately 1,530 acres of land zoned residential, office, commercial, recreation, public facility, agriculture, and industrial. The existing and forecast demands are summarized in Table 4.49 presented following the discussion on County Service Area 16 (Shandon).

The water supply for the San Miguel CSD is obtained solely from groundwater pumping of the Paso Robles Formation. There are three wells within the district; the two primary wells are Well No. 3 and Well No. 4. Well No. 5, a smaller well, historically exhibited high nitrate levels and was removed from service. In 2007, the District replaced Well 5 with a new well in the same location, but installed it deeper (approximately 800 feet). This new well has experienced occasional high nitrate concentrations and possibly high arsenic concentrations. This new well is temporarily out of service while the district conducts further evaluation.

The presence of gross alpha emitters approaching the MCL in the San Miguel water supply is of growing concern. The presence of gross alpha emitters is from naturally occurring decay of Uranium-238 and Thorium-232. The two main wells have shown increasing levels of gross alpha particles through the years, although the average is currently below the proposed MCL. Several of these samples indicate gross alpha levels that exceed the proposed MCL of 15 pCi/L.

4.6.8.5.2 *Camp Roberts*

Source: *San Miguel CSD/Camp Roberts Water System Consolidation Study, 2002*

Camp Roberts is operated by the California Army National Guard, and covers approximately 42,784 acres. Camp Roberts, located north of the community of San Miguel, is situated in both San Luis Obispo and Monterey Counties. When fully mobilized, the base supports 8,500 people. In the event of a nuclear disaster at Diablo Canyon Nuclear Power

Plant, Camp Roberts is an evacuation and staging area for about 23,000 residents within San Luis Obispo County. No growth is expected for Camp Roberts, however, based on the above discussion, water demand and temporary service population can vary widely. Base population can be a combination of on-base personnel and civilian personnel that do not live on Base. The existing and forecast demands are summarized in Table 4.49 following the discussion on County Service Area 16 (Shandon).

Camp Roberts water supply is from groundwater pumping, with three active wells. TDS and arsenic levels in the groundwater are marginal. According to 2001 reports, the TDS concentration was about 900 mg/L. Also, the arsenic levels in 2001 were noted to be 9.6 µg/L, just below the MCL of 10 µg/L.

4.6.8.5.3 *City of Paso Robles*

Source: *2005 City of Paso Robles UWMP and correspondence from Christopher Alakel*

The City of Paso Robles is located along Highway 101 in northern San Luis Obispo County. Paso Robles is situated on the upper Salinas River. Paso Robles encompasses a total area of 11,985 acres on both sides of the Salinas River. The City also is situated on the western margin of the Paso Robles Groundwater Basin.

Paso Robles has a strong agricultural base, and remains the major service center for ranching and agriculture in the North County, particularly areas to the east along Highway 46. The City proper is a mix of residential, commercial and industrial land uses, with significant areas devoted to parks and open space. Paso Robles, with a 2005 population of 27,361, is a growing community that could attain a population of 44,000 at build-out. The existing and forecast demands are summarized in Table 4.49 following the discussion on County Service Area 16 (Shandon).

The City of Paso Robles has historically relied upon local water supplies from the Salinas River Underflow and from the Paso Robles Formation (which is part of the Paso Robles Groundwater Basin) for its municipal water supply. The deeper Paso Robles Formation currently contributes 2,856 AFY to City supply. The City plans to maintain this extraction rate in the future. Salinas River Underflow refers to shallow subterranean flows in direct connection with the Salinas River. This underflow is subject to appropriative water rights and permitting by the State Water Resources Control Board (State Board). An approved State Board application allows the City to extract up to 8 cfs (3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31).

The City participates in the Paso Robles Groundwater Basin Agreement (Agreement) with the District, CSA 16 – Shandon, San Miguel CSD, and approximately 20 landowners that have organized as the Paso Robles Imperiled Overlying Rights (PRIOR) group. Key elements of the Agreement are a clear acknowledgement that the Paso Robles Groundwater Basin is not in overdraft now, and that the parties will not take court action to establish any priority of groundwater rights over another party as long as the Agreement is

in effect. In addition, the parties agree to participate in a meaningful way in groundwater management activities, and to develop a plan for monitoring groundwater conditions in the groundwater basin.

To assure its water supply into the future, the City of Paso Robles will purchase water from the Nacimiento Water Project, which is projected to deliver 4,000 AFY of raw water. The City is progressing with its plans for a water treatment plant. In November 2011, the City Council authorized the implementation of a plant capable of treating 2,000 AFY of NWP water. This phase should be completed by 2015/16. The City will have the option of increasing its allotment of Nacimiento water to 8,000 as demand increases.

Another supply alternative being pursued by Paso Robles is the use of recycled wastewater. The City owns its own wastewater treatment plant, which currently provides secondary treatment. Several alternatives have been studied to upgrade treatment to the tertiary level, and it is assumed that one of these alternatives will eventually be pursued. 5,000 AFY of wastewater could ultimately be treated, but only 944 AFY would be needed to meet build-out demand. This margin of safety serves as a backup source in case of limitations on any of the other sources of supply.

The City has implemented a number of mandatory water conservation measures that were in force throughout the water service area. They include mandatory recycling or recirculation of water for car washes, cooling systems, and decorative fountains and several other practices designed to curb water waste. In the summer of 2011, the City lifted many of the mandatory requirements. Paso Robles is also a member in the San Luis Obispo County Partners in Water Conservation.

The City has targeted landscape irrigation as the water use practice with the highest potential for water conservation. Educational resources are available on the City website, in City offices, and in periodic brochures included with water bills. The City also sponsors a school education program that includes water conservation as a key component.

In general, City water quality is good, but has relatively high TDS and hardness. With regard to regional groundwater quality, the Estrella subarea of the Paso Robles Groundwater Basin is characterized locally by increasing TDS, chloride and nitrate concentrations. These adverse water quality trends are unlikely to affect the City's water supply in the near future, given that groundwater currently provided by the City meets all drinking water standards and the increases in TDS, chloride and nitrate are localized. Nonetheless, salt loading to the groundwater basin is an important long-term concern. Recognizing that the City's wastewater disposal is one source of salt loading, the Paso Robles has made the reduction of salt loading one of their water resource goals. Major means to reduce salt in the city wastewater include planned use of high-quality Lake Nacimiento supply, reduced use of home water softeners, strategic use of wells with lower salt concentrations, and implementation of an industrial waste discharge ordinance.

4.6.8.5.4 *County Service Area 16 (Shandon)*

Source: *2004 CSA 16 Water Master Plan, plus written updates provided by Jay Johnson, County of San Luis Obispo*.

County Service Area No. 16 (CSA 16) was formed in 1972 to furnish potable water to customers in the Shandon area. Narrative and data are based on the 2004 Water System Master Plan. CSA 16 provides water service to 284 residential customers, 11 public authorities, and one business. Shandon's urban reserve line encompasses areas outside of the existing service boundary, so the future size and composition of the customer base will likely change. Within the existing community of Shandon, build-out service is expected to reach up to 547 service connections. However, the Shandon Community Plan is being updated that could result in a total of 2,200 residential connections and over 50 commercial and public authority service connections. The projected population is approximately 8,125.

The current source of supply for the community of Shandon is groundwater from the Paso Robles Groundwater Basin. Two wells provide all the current needs of the community and the groundwater supply is deemed sufficient to meet water needs at build-out in the current service area. Additional wells and storage will be needed to meet peak demand requirements for build-out.

CSA 16 has no supplemental water source, but does have an allocation of 100 AFY from the State Water Project. Because of the high cost to develop this supply and the lack of need at the time, in 1995, the Board of Supervisors approved offering their 100 AFY allocation for sale to other entities in the County. Since that time, only 15 AF of the 100 AFY has been secured via a transfer option agreement. This agreement expired in 2009 without the transfer taken.

The water in Shandon meets all Federal and State drinking water requirements and overall can be considered very good quality water.

Table 4.49 San Miguel CSD, Camp Roberts, CSA 16, and Paso Robles Demand and Supply

	San Miguel CSD	Camp Roberts	Paso Robles	CSA 16 (Shandon)
Demand				
Existing Demand (AFY)	235	190	4,063[7]	147
Forecast Demand (AFY)	466-582[6]	190	8,422-9,772[6][7]	271-1,100[8]
Supply				
Paso Robles Groundwater Basin(AFY)[1]				
Paso Robles Formation and/or alluvium (AFY)	235	190	2,856[2]	147
Salinas River Underflow (AFY)	0	0	537/872[3]	0
Other Groundwater Supply Sources (AFY)	0	0	0	0
SWRCB Water Diversions (AFY)	0	0	0	0
State Water Project (AFY)	0	0	0	66[4]
Nacimiento Water Project (AFY)[5]	0	0	4,000	0
Total Supply (AFY)	**235**	**190**	**7,728**	**213**

Notes:

1. The perennial yield was estimated to be 97,700 AFY (includes 16,400 AFY from the Atascadero Groundwater Sub-basin). Previous studies estimated that the total groundwater pumping in the basin during 2006, including Monterey County demands, was 88,154 acre-feet, which is 90 percent of the basin perennial yield.
2. The deeper formations of the Paso Robles Groundwater Basin contributes approximately 2,856 AFY to the City of Paso Robles supply. The City plans to maintain this extraction rate in the future.
3. The City of Paso Robles is permitted to extract up to 8 cfs (3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31). For the purposes of this analysis, it was assumed that half (4,063 AFY) of the existing demand of 8,126 AFY was extracted from the Salinas

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Table 4.49 San Miguel CSD, Camp Roberts, CSA 16, and Paso Robles Demand and Supply				
	San Miguel CSD	**Camp Roberts**	**Paso Robles**	**CSA 16 (Shandon)**

River Underflow via the Thunderbird Wellfied in WPA 13. The remaining permitted extraction of 537 AFY was pumped from wells within WPA 14. At build-out, it was assumed that Paso Robles would extract 3,728 AFY from the Salinas River Underflow in WPA 13 and the remaining 872 AFY would be extracted from Salinas River Underflow within WPA 14.

4. CSA 16 has an allocation of 100 AFY of State Water Project (but no drought buffer), but has not developed this supply due to high cost. State Water Project average allocation assumed 66 percent of contract water service amount, which equate to 66 AFY.
5. Nacimiento Water Project is scheduled to go online in 2010.
6. Twenty (20) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand for San Miguel and 10% for Paso Robles.
7. Existing demand was 8,126 AFY, but half (4,063 AFY) was supplied by the Thunderbird Wellfied in WPA 13. Therefore, the net demand in WPA 14 is 4,063. Of this 4,063 AFY demand, 537 AFY was supplied by Salinas River Underflow and 2,856 AFY was supplied by the deeper Paso Robles Formation aquifer. The build-out forecast demand ranged between 12,150 and 13,500 AFY. This analysis assumed that 3,728 AFY would be supplied by the Thunderbird Wellfield in WPA 13. Therefore, the net forecast demand is 8,422 to 9,772 AFY.
8. Upper end of the range reflects demand projected in accordance with the draft Shandon Community Plan should it be approved by the Board of Supervisors in the future.

4.6.8.5.5 *Rural Users*

The existing rural demand for WPA 14 is approximately 3,590 AFY and future demand ranges from 5,570 to 6,230 AFY.

4.6.8.5.6 *Agricultural Users*

The existing annual applied water for WPA 14 is approximately 67,610 AFY. The existing crops in this area include commodities from all crop groups. The projected future annual applied water for WPA 14 ranges from approximately 60,740 to 86,820 AFY. The projected future agricultural could exceed existing annual applied water due to increases in acreage of citrus, deciduous, pasture, vegetables, and vineyards.

4.6.8.5.7 *Environmental*

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8.5.8 *Salinas/Estrella WPA 14 Water Demand and Supply Summary*

Table 4.50 Salinas/Estrella WPA 14 Demand and Supply							
	San Miguel CSD	**Camp Roberts**	**Paso Robles**	**CSA 16 (Shandon)**	**Agriculture**	**Rural**	**Environmental (11)**
Demand							
Existing Demand (AFY)	235	190	4,063(10)	147	67,610	3,590	
Forecast Demand (AFY)	466-582(9)	190	8,422-9,772(9)(10)	271-1,100(12)	60,740-86,820	5,570-6,230	
Supply							
Paso Robles Groundwater Basin (AFY)(1)							
Paso Robles Formation and/or alluvium (AFY)	235	190	2,856(2)	147	(3)	(3)	
Salinas River Underflow (AFY)	0	0	537/872(4)	0	738(5)	0	
Other Groundwater Supply Sources (AFY)	0	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	0	(6)	(6)	
State Water Project (AFY)	0	0	0	66(7)	0	0	
Nacimiento Water Project (AFY)(8)	0	0	4,000	0	0	0	
Total Supply (AFY)	**235**	**190**	**7,728**	**213**	**Uncertain**	**Uncertain**	
Environmental Water Demand							

Table 4.50 Salinas/Estrella WPA 14 Demand and Supply

	San Miguel CSD	Camp Roberts	Paso Robles	CSA 16 (Shandon)	Agriculture	Rural	Environmental (11)
Environmental Water Demand (AFY)(11)							Uncertain
Unimpaired Mean Annual Discharge(AFY)(11)							Uncertain

Notes:

1. The perennial yield was estimated to be 97,700 AFY (includes 16,400 AFY from the Atascadero Groundwater Sub-basin). Previous studies estimated that the total groundwater pumping in the basin during 2006, including Monterey County demands, was 88,154 acre-feet, which is 90 percent of the basin perennial yield.
2. The deeper formations of the Paso Robles Groundwater Basin contributes approximately 2,856 AFY to the City of Paso Robles supply. The City plans to maintain this extraction rate in the future.
3. It is assumed that the majority of water supply for agriculture and rural users comes from the Paso Robles Groundwater Basin.
4. The City of Paso Robles is permitted to extract up to 8 cfs (3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31). For the purposes of this analysis, it was assumed that half (4,063 AFY) of the existing demand of 8,126 AFY was extracted from the Salinas River Underflow via the Thunderbird Wellfied in WPA 13. The remaining permitted extraction of 537 AFY was pumped from wells within WPA 14. At build-out, it was assumed that Paso Robles would extract 3,728 AFY from the Salinas River Underflow in WPA 13 and the remaining 872 AFY would be extracted from Salinas River Underflow within WPA 14.
5. SWRCB records indicate that 738 AFY could be diverted from the Salinas River (direct diversion or underflow). It is assumed that the entire amount is used for agriculture.
6. Diversions do not distinguish type of use. Potentially 4,884 AFY could be diverted for use to either agriculture or rural residential.
7. CSA 16 has an allocation of 100 AFY of State Water Project (but no drought buffer), but has not developed this supply due to high cost. State Water Project average allocation assumed 66 percent of contract water service amount, which equate to 66 AFY.
8. Nacimiento Water Project is scheduled to go online in 2010.
9. Twenty (20) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand for San Miguel and 10% for Paso Robles.
10. Existing demand was 8,126 AFY, but half (4,063 AFY) was supplied by the Thunderbird Wellfied in WPA 13. Therefore, the net demand in WPA 14 is 4,063. Of this 4,063 AFY demand, 537 AFY was supplied by Salinas River Underflow and 2,856 AFY was supplied by the deeper Paso Robles Formation aquifer. The build-out forecast demand ranged between 12,150 and 13,500 AFY. This analysis assumed that 3,728 AFY would be supplied by the Thunderbird Wellfield in WPA 13. Therefore, the net forecast demand is 8,422 to 9,772 AFY.
11. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.
12. Upper end of the range reflects demand projected in accordance with the draft Shandon Community Plan should it be approved by the Board of Supervisors in the future.

4.6.8.6 Cholame WPA 15

The primary source of water supply for this WPA is the Cholame Valley Groundwater Basin, and to a limited extent, other groundwater supplies and State Board water diversions.

4.6.8.6.1 *Urban Users*

WPAs 8, 9, 10, 11, and 15 do not have urban demand because there are no large population centers in these WPAs.

4.6.8.6.2 *Rural Users*

The existing rural demand for WPA 15 is approximately 10 AFY and future demand ranges from 150 to 190 AFY.

4.6.8.6.3 *Agricultural Users*

The existing annual applied water for WPA 15 is approximately 80 AFY. The existing crops in this area are primarily citrus (olive) crops. The projected future annual applied water for WPA 15 ranges from approximately 60 to 80 AFY. The projected future agricultural demand is approximately equal to the existing agricultural demand in this planning area. Given the current land use, the projection for WPA 15 in particular could be refined significantly by taking ranching operations water use and conservation easement provisions into account.

4.6.8.6.4 *Environmental*

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8.6.5 *Cholame WPA 15 Water Demand and Supply Summary*

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Table 4.51 Cholame WPA 15 Demand and Supply

	Urban	Agriculture	Rural	Environmental[2]
Demand				
Existing Demand (AFY)	0	80	10	
Forecast Demand (AFY)	0	60-80	150-190	
Supply				
Cholame Valley Basin (AFY)[1]	0	80	10	
Other Groundwater Supply Sources (AFY)	0	Unlikely	Uncertain	
SWRCB Water Diversions (AFY)	0	41	0	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)				Uncertain
Unimpaired Mean Annual Discharge(AFY)				Uncertain
Water Supply Versus Demand Balance	**0**	**Uncertain[2]**	**Uncertain[2]**	**Uncertain**

Notes:
1. There is no information describing the basin yield.
2. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.6.8.7 Nacimiento WPA 16

The primary source of water supply for this WPA is Lake Nacimiento, and to a limited extent, other groundwater supplies and State Board water diversions.

4.6.8.7.1 *Oak Shores*

The Nacimiento Water Company (NWC) serves the community of Oak Shores, which is on the banks of Nacimiento Lake. The NWC currently serves a population of 275 residents with water drawn from the lake, which is then treated prior to distribution. Plans to develop an additional 345 lots as part of Oak Shores Estates are currently on hold. The water supply allocation for Oak Shores is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area. The existing and forecast demands are summarized in Table 4.53.

4.6.8.7.2 *Heritage Ranch Community Services District*

Source: *2008 Heritage Ranch Water Master Plan with updates*

The Heritage Ranch Community Services District (Heritage Ranch CSD) was formed in 1990 to oversee water and sewer services for the Heritage Ranch community. It supplies its customers with domestic water service. Heritage Ranch is an unincorporated community located on the east side of Lake Nacimiento, approximately 15 miles northwest of the City of Paso Robles. Land use at Heritage Ranch consists mostly of residential, recreational, and open space areas with some commercial and public facility areas. A community that was originally started as a remote vacation destination with the vast majority of part-time residents has now become a bedroom community to neighboring cities with full-time residents.

As of September 2010, the Heritage Ranch CSD serves approximately 1,778 water customers. Based on a density of 2.0 persons per household, this equates to an existing population of approximately 3,556 persons. The Adopted Specific Plan for the Heritage Ranch CSD, prepared in 1972 and revised in 1980, limited the total number of developable units to 4,000. In 2004, the maximum number of developable units was revised a second time to its current maximum value of 2,900 units. Based on the average household size of 2.0 persons per household, it is anticipated that the Heritage Ranch CSD's total build-out population will reach 5,800 persons. The existing and forecast demands are summarized in Table 4.52.

The Heritage Ranch CSD only has one water supply source, the Gallery Well, which is fed via three horizontal wells located in the Nacimiento River bed just downstream of the Nacimiento Dam. Typically, the Nacimiento River is fed year-round by the release of water through the upper and/or lower outlet works in the dam at Lake Nacimiento. Monterey County Water Resources Agency monitors and controls the release of the water until the water level of the lake drops below 687 feet, at which time San Luis Obispo County may obtain control over the lake releases. The water is primarily released to sustain habitat in the river, provide water to farmers in the Salinas Valley, and halt sea water intrusion into the Salinas Valley, in addition to providing a water supply source to the Heritage Ranch CSD. If no water is released from the lake, which has rarely occurred in the past 50 years, the Heritage Ranch CSD will not

have a water supply. Even though the water level of Lake Nacimiento has never dropped below the dam outlet, it has come close. The last time this occurred was in October of 1989, when the lake level dropped to within two feet above the lower outlet works.

The 1,100 AFY of allocation of Nacimiento Reservoir water designated for use in Heritage Ranch's service area is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area. It is sufficient to provide water for build-out demand, but the configuration of the delivery system leaves the Heritage Ranch CSD vulnerable to a termination in water supply in an extreme drought. Alternative sources are under consideration, including taking water directly from the lake and connecting to the Nacimiento Pipeline. A possible tie-in with Camp Roberts was explored, but is now considered as not being a feasible option due to the reluctance of Camp Roberts to consider any emergency water supply options.

Water demands over the last 3 years have decreased due to an increase in water rates and implementation of water conservation programs such as for toilet retrofits and turf conversion. While the Heritage Ranch CSD's water supply to its customers has historically met all primary water quality standards, it currently exceeds the limits for Disinfection Byproducts (DBP). The treatment plant has been ineffective in removing sufficient natural organic matter to prevent the formation of DBP. The District Board hired a water treatment process engineering consultant and received a report with recommendations on new treatment equipment to better control DBP in September 2010.

4.6.8.7.3 *Rural Users*

The existing rural demand for WPA 16 is approximately 280 AFY and future demand ranges from 730 to 880 AFY.

4.6.8.7.4 *Agricultural Users*

The existing annual applied water for WPA 16 is approximately 3,860 AFY. The existing crops in this area are citrus, deciduous, pasture, and vineyards. The projected future annual applied water for WPA 16 ranges from approximately 4,740 to 7,120 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, deciduous, and vineyards.

4.6.8.7.5 *Environmental*

The unimpaired mean annual discharge for WPA 16 inclusive of the water management areas is approximately 251,124 AFY and environmental water demand of 108,390 AFY. WPA 16 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The major river in these sub-watersheds is the Nacimiento River.

4.6.8.7.6 *Nacimiento WPA 16 Water Demand and Supply Summary*

Table 4.52 Nacimiento WPA 16 Demand and Supply

	Nacimiento Water Company[1]	Heritage Ranch CSD	Agriculture	Rural	Environmental
Demand					
Existing Demand (AFY)	[2]	619	3,860	280	
Forecast Demand (AFY)	[2]	935-1,039	4,740-7,120	730-880	
Supply					
Lake Nacimiento (AFY)	600[3]	1,100[3]	0	0	
Other Groundwater Supply Sources (AFY)	0	0	Uncertain[4]	Uncertain[4]	
SWRCB Water Diversions (AFY)	0	0	[5]	[5]	
Total Supply (AFY)	**600**	**1,100**	**Uncertain**	**Uncertain**	
Environmental Water Demand					
Environmental Water Demand (AFY)[6][8][9]					108,390
Unimpaired Mean Annual Discharge (AFY)[7][8][9]					251,120

Notes:
1. Nacimiento Water Company serves the community of Oak Shores.
2. No estimate available for the current or forecast demand.
3. The 600 AFY water supply allocation for Oak Shores is part of the 1,750 AFY reserved for San Luis Obispo County residents in the Lake Nacimiento area. Heritage Ranch CSD's allocation of Lake Nacimiento is 1,100 AFY.
4. Groundwater supply sources around Lake Nacimiento are the typical sources of supply for wells that serve agricultural and rural users. There

Table 4.52 Nacimiento WPA 16 Demand and Supply

	Nacimiento Water Company[(1)]	Heritage Ranch CSD	Agriculture	Rural	Environmental

is no information describing the yield for these groundwater supplies.

5. Diversions do not distinguish type of use. Potentially 1,048 AFY could be diverted for use to either agriculture or rural residential.
6. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
7. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
8. Estimates for environmental water demand include the watershed area for the Nacimiento River Index-station (162 square miles); though the Index-station is within WPA 16, most of the watershed area is not.
9. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.7 ANALYSIS CRITERIA

The criteria below were used to determine whether a supply shortfall exists and to evaluate how well the proposed water management strategies address the shortfall.

4.7.1 Criteria for Declaring a Water Resource Shortfall

1. Do the existing water demands equal or exceed the dependable supply? (consistent with current criteria for RMS water supply)
2. Do the forecast build-out demands equal or exceed the available supply?

4.7.2 Criteria for Evaluating and Ranking Water Resource Management Strategies (management, projects, programs, policies)

1. The strategies should result in a sustainable and reliable water supply.
2. The strategies should optimize management of existing supply resources and infrastructure.
3. The strategies should reduce the dependency on imported supplies and promote local control.
4. The strategies should be consistent with and support existing County goals, policies, and documents, such as: the “Strategic Growth” principles adopted by the Board of Supervisors, the Conservation and Open Space Element (COSE), Integrated Regional Water Management Plan (IRWMP), Agriculture Element, and Climate Action Plan.
5. When comparing different strategies, the preferred strategy should have the least environmental impact with or without mitigation when compared to other options.
6. A strategy’s benefits and costs should be verifiable

The water management strategies were assigned scores from 0 to 5 for each criterion, depending on how well the strategy met the goals of the criteria. For example, if a strategy uses existing supply/infrastructure to a greater extent, and/or modernizes antiquated/inefficient supplies, then it received the maximum score of 5 for criteria number one. If on the other hand, a water management strategy makes minimal use of existing supplies and requires significant new infrastructure, then it received a 1 for the first criterion. The strategy received a 0 if it was not an existing supply or resource.

The process of assigning points to the water management strategies based on how well they met the goals of the criteria was conducted over two WRAC workshops. The outcome of these WRAC workshops resulted in the following ranking of the proposed strategies (from those that best addressed criteria to those that did not):

1. Conservation

2. Optimize use of the Nacimiento Water Project
3. Land Use Management
4. Recycled Water
5. Optimize use of State Water
6. Groundwater Banking/Recharge
7. Groundwater Supply Sources
8. Salinas Reservoir Expansion/Exchanges
9. Desalination
10. Lopez Lake Expansion/Exchanges
11. New Off-Stream Storage
12. Nipomo supplemental water project optimization
13. Precipitation Enhancement
14. New On-Stream Storage

4.7.3 Water Management Strategies

Presented below are conceptual water management strategies that were considered in this study to provide long-term water reliability and supply for the County. A brief description of each strategy is provided below, followed up with a more detailed discussion later in this section of the report.

4.7.3.1 Conservation Programs

Consistent with State Water Code and County Conservation Element Policies, a potential 20 percent reduction in demand could be achieved by some cities/districts and other water users in the county. Some of the potential challenges include:

- Some coastal communities and cities that have aggressively implemented conservation programs expect limited or no further reduction in demand due to conservation
- Tiered rate structures will likely be necessary to achieve conservation goals, which might meet resistance from some cities and agencies
- Cities and agencies need not to only pass policies that promote conservation, but also provide users the “tools” to conserve, such as free home water surveys and landscape audits, sustainable landscape workshops, and education campaigns
- Insufficient voluntary conservation by some rural and agricultural users and resistance to County/District implementation of mandatory conservation programs

This management strategy is consistent with and supports existing County goals, policies, and documents, such as: the “Strategic Growth” principles adopted by the Board of Supervisors, the Conservation and Open Space Element (COSE), Integrated Regional Water Management Plan (IRWMP), Agriculture Element, and Climate Action Plan. Local cities/agencies would implement conservation programs. The County would promote rural and agricultural conservation.

4.7.3.2 Optimize Use of the Nacimiento Water Project (NWP)

Six thousand, ninety-five (6,095) AFY of contractual supply and infrastructure capacity (northern reaches) is available to existing participants or other entities for direct delivery and treatment, groundwater banking/recharge, or other reliability programs. Some of the potential challenges include:

- Participation requests of other entities depend on whether or not the entity was part of the EIR. If entity was part of the EIR, then the request can proceed to the District Board of Supervisors for consideration. If not, then the entity must receive support of existing participants that represent at least 55 percent of existing subscription amounts before consideration by the District Board.
- Infrastructure capacity reduces in the southern reaches of the pipeline

This strategy optimizes management of an existing supply resource and infrastructure by using the NWP supply to its fullest before building new supplies. Additional allocations would be purchased by project participants or other entities.

4.7.3.3 Land Use Management

Integrating land use and water management consists of planning for the housing and economic development needs of a growing population while providing for the efficient use of water, water quality, energy, and other resources. The way in which we use land- the pattern and type of land use and transportation and the level of intensity- have a direct relationship to water supply. This strategy promotes reducing municipal and industrial water demand through water use efficiency, recycling, capturing and reusing storm water, recharging and protecting groundwater, protecting ground and surface water from failed septic systems, and encouraging growth in areas with sufficient reliable water supplies. Some of the potential challenges include:

- Resistance to mandatory actions and property rights issues.
- Lack of voluntary action to implement low impact development (LID) strategies

This strategy is consistent with and supports existing County goals, policies, and documents, such as: the “Strategic Growth” principles adopted by the Board of Supervisors, the COSE, IRWMP, Agriculture Element, and Climate Action Plan.

4.7.3.4 Recycled Water

Recycled water is a supply option available to all cities and agencies with a wastewater treatment plant. Some of the potential challenges include:

- Upgrade to existing wastewater treatment plant (WWTP) required. Level of treatment depends on the intended use.
- Sufficient users are needed to justify a recycled water project.
- Public perception to using recycled water for irrigation.

This strategy reduces the dependency on imported supplies and promotes local control. Local cities and agencies would implement recycled water projects.

4.7.3.5 Optimize Use of State Water Project (SWP)

Fifteen thousand, two hundred seventy-three (15,273) AFY of unsubscribed allocation could be used by SWP contractors, entities seeking to become contractors, and/or for groundwater banking/recharge or other reliability programs. Some of the potential challenges include:

- Hydraulic and treatment plant capacity constraints put limits on how this excess can be used
- Study to evaluate available capacity in SWP pipeline is on-going
- Construction of a raw water pipeline to transmit SWP water to the Paso Robles Groundwater Basin from Polonio Pass water treatment plant for groundwater recharge could be cost prohibitive
- Future reliability of SWP allocations (MWR assuming 66 percent as the average allocation)

This strategy optimizes management of an existing supply resource and infrastructure by using the SWP supply to its fullest before building new supplies. Negotiations between the State Department of Water Resources, District, Santa Barbara County Flood Control and Water Conservation District, the Central Coast Water Authority (CCWA) and existing participants regarding available capacity in the SWP Coastal Branch pipeline and contract revisions are required.

4.7.3.6 Groundwater Banking/Recharge

Groundwater management is the planned and coordinated management of a groundwater basin with a goal of long-term sustainability of the resource. Managed recharge occurs when water is placed into constructed recharge or spreading ponds or basins, or when water is injected into the subsurface by wells. Recharge basins are frequently used to recharge unconfined aquifers. Water is spread over the surface of a basin or pond in order to increase the quantity of water infiltrating into the ground and then percolating to the water

table. This strategy optimizes the use of an existing supply and increases reliability. Recharge and banking could also be implemented by delivering surface water to a groundwater user in lieu of use of that groundwater. Some of the potential challenges include:

- Effects of land use changes on cost and siting of new or enlarged recharge facilities
- Water quality compatibility and regulations
- Infrastructure and operational costs
- Effect of operations on nearby overlying groundwater users
- Water accounting
- CEQA review and environmental permitting process

4.7.3.7 Groundwater Supply Sources

This water supply option is available to all entities that overlie or are near a groundwater basin. Examples include a community in need of a water supply coordinating with a landowner or other agency that overlies a basin with sufficient yield to transfer water; treating groundwater from a basin that is not typically used due to water quality; forming an organization to supply water to a group of homes or agricultural operations; an existing organization extracting more groundwater to meet demands; or individually extracting water from a groundwater basin the property owner overlies. Some of the potential challenges include:

- Ability to develop agreements for land and easements to locate utilities.
- Legality of/regulations regarding pumping groundwater from one basin for use in another basin needs to be investigated.
- For groundwater basins that are not typically used due to water quality problems, adding water treatment can be a short or long-term solution to address needs.
- Conflicts with overlying users and County policies
- Future use and safe yield

This strategy reduces the dependency on imported supplies and promotes local control.

4.7.3.8 Salinas Reservoir Expansion/Exchanges

Santa Margarita Lake/Salinas Reservoir could potentially increase its safe yield by 1,650 AFY. Some of the potential challenges include:

- Transfer of ownership from the Army Corps of Engineers to the District is under consideration.
- Major structural improvements to the dam would be necessary to install the spillway gates.

- Water rights issues and the ability to renew the expansion right.

This strategy optimizes management of existing supply resource and infrastructure by using Santa Margarita Lake/Salinas Reservoir supply to its fullest before building new supplies. At this time, it is uncertain which agency would lead the installation of spillway gates.

4.7.3.9 Desalination

Desalination is used to treat seawater as well as brackish water (water with a salinity that exceeds normally acceptable standards for municipal, domestic, and irrigation uses, but less than that of seawater). Desalination can be a reliable water supply alternative and a part of the solution for meeting current and future water needs. Some of the potential challenges include:

- Permitting and environmental issues could be complex, and implementation could take years.
- Brine disposal and energy use

This strategy reduces the dependency on imported supplies and promotes local control. Local cities and agencies would implement desalination projects.

4.7.3.10 Lopez Lake Expansion/Exchanges

There is a potential to increase the safe yield for existing project participants. Some of the potential challenges include:

- Arroyo Grande Habitat Conservation Plan may require additional downstream releases and affect available supply.
- Current study to evaluate the feasibility of modifying the dam to increase reservoir capacity ongoing.
- Increase in safe yield depends on the results of the feasibility study and the habitat conservation plan.

This strategy optimizes management of existing supply resources and infrastructure by using Lopez Lake supply to its fullest before building new supplies. The District would likely lead implementation of dam modifications to increase yield for existing participants.

4.7.3.11 New Off-stream Storage

This water supply option would capture surface water runoff for use during high demand periods. There a numerous challenges including, but not limited to:

- Substantial funding required
- Significant environmental and regulatory issues
- Lack of suitable sites

This strategy reduces the dependency on imported supplies and promotes local control.

4.7.3.12 Nipomo Supplemental Water Project Optimization

The Nipomo supplemental water project will consist of waterlines, a pump station and reservoir, flow meter facilities and an interconnect between the City of Santa Maria and Nipomo Community Services District water systems that is designed to deliver 3,000 acre-feet per year (AFY). The project will utilize regional water supplies to slow the depletion of groundwater, reduce the potential for sea water intrusion, be consistent with the settlement agreement and the judgment related to the groundwater adjudication, and increase the reliability of water supply by providing a diversity of water sources. The portion of the waterline that crosses under the Santa Maria River has a capacity of 6,200 AFY, providing a potential for increased deliveries in the future to further benefit the groundwater basin in the Nipomo area.

Some of the potential challenges with utilizing the additional capacity include:

- Negotiations between Nipomo area participants, the City of Santa Maria, Central Coast Water Authority, the District and DWR to determine a source of supply, which would likely include a portion of the District's excess State Water.
- Cost of additional infrastructure and the cost of the water.

This strategy optimizes management of existing supply resources and infrastructure by using the intertie to the fullest extent before building new supplies, but would likely use additional State Water.

4.7.3.13 Precipitation Enhancement

This supply option, commonly called "cloud seeding", artificially stimulates clouds to produce more rainfall than they would naturally. Some of the potential challenges:

- Proof of actual results from such a program
- Fear of environmental impacts associated with use of chemicals

This management strategy reduces the dependency on imported supplies and promotes local control.

4.7.3.14 New On-stream Storage

This water supply option would require the construction of a dam across an active river or stream to capture water for use during high demand periods. There a numerous challenges including, but not limited to:

- Substantial funding required
- Significant environmental and regulatory issues
- Lack of suitable sites

This strategy reduces the dependency on imported supplies and promotes local control.

4.7.4 Conservation Programs

4.7.4.1 Agriculture Conservation

The strategy to achieve agricultural water savings and benefits primarily includes improvements in on-farm technology and management. The strategy may be dependent on an array of factors such as labor, demographics, changes in government policies, funding availability, environmental stresses, desire to increase yield, education, energy costs, water supply development, water delivery systems, legal issues, economics, and land use issues. Improvements in agricultural water use efficiency primarily occur from three activities:

1. Hardware. Improving on-farm irrigation systems and water supplier delivery systems.
2. Water Management. Improving management of on-farm irrigation.
3. Crop Water Consumption. Reducing non-beneficial evapotranspiration.

Hardware Upgrades. Due to water delivery systems limitations, growers are often unable to apply the optimal amount of irrigation water. Water delivery system improvements such as integrated supervisory control and data acquisition systems (SCADA), and other hardware and operational upgrades, can provide flexibility to deliver water at the time, quantity, and duration required by the grower. At the on-farm level, many old and most new orchards and vineyards, as well as some annual fruits and vegetables, are irrigated using pressurized irrigation systems. Almost all trees and vines established since 1990 are irrigated using micro-irrigation. Between 1990 and 2000, the crop area under micro-irrigation in California grew from 0.8 million to 1.9 million acres, a 138 percent increase.

Many growers use advanced systems for irrigation, fertilizer application, and pest management. Advanced technologies include geographic information system (GIS), global positioning system (GPS), and satellite crop and soil moisture sensing systems. These technologies allow growers to improve overall farm management.

Water Management. On-farm delivery systems must be managed to take advantage of new technologies, science and hardware. Personal computers connected to real time communication networks and local area networks allow transmission of data to a centralized location. These features enable irrigation staff to monitor and manage water flow and to log data. With such systems, the irrigation staff spends less time manually monitoring and controlling individual sites, allowing them to plan and coordinate system operation, and potentially reduce costs. Such systems improve communications and provide for flexible irrigation, distribution, measurement and accounting.

Some of today's growers use satellite weather information and forecasting systems to schedule irrigation. Many growers employ evapotranspiration and soil moisture data for irrigation. Users generate more than 70,000 inquires per year to the California Irrigation Management Information System (CIMIS), DWR's weather station program provides

evapotranspiration (ET) data. Universities, water suppliers, and consultants also make this information available to a much wider audience via newspapers, Web sites, and other media.

Reducing Evapotranspiration (ET). ET is the amount of water that evaporates from the soil and transpires from the plant. Growers can reduce ET by reducing unproductive evaporation from the soil surface, eliminating weed ET, and shifting crops to plants that need less water, or reducing transpiration through deficit irrigation. In addition, some growers deficit irrigate their crops during water short periods and for agronomic purposes. Management practices such as mulching, use of cover crops, no till and minimum tillage, dust mulching associated with dry farming reduce unnecessary evaporation from the soil surfaces. Some of these management/ cultural practices have energy conservation components as well.

4.7.4.1.1 *Potential Benefits of Agricultural Water Use Efficiency*

Growers may reduce pumping costs and preserve groundwater resources.

4.7.4.1.2 *Potential Cost of Agricultural Water Use Efficiency*

The CALFED (The CALFED Bay-Delta Program is a collaboration among 25 State and Federal agencies that came together with a mission to improve California's water supply and the ecological health of the San Francisco Bay/Sacramento-San Joaquin River Delta) Programmatic Record of Decision (ROD) estimates of 2000 estimated that efficiency improvements could result in statewide water savings ranging from 120,000 to 563,000 AFY by 2030 at a cost ranging from $35 to $900 per acre feet (CALFED 2000a). The analysis was based on improving on-farm efficiency up to 85 percent. It was assumed that the achieved 85 percent efficiency would be maintained afterward. Technical management and hardware limitations to achieve high performance levels for irrigation systems restrict irrigation distribution uniformities and on-farm efficiencies up to 85 percent, beyond which a sustainable and healthy soil environment cannot be maintained. It is possible that higher than 85 percent irrigation efficiencies could result in soil salinity, soil degradation, and loss of productivity.

4.7.4.1.3 *Major Issues Facing Agricultural Water Use Efficiency*

Funding and Implementation. Implementation of agricultural water use efficiency depends on many interrelated factors. Farmers strive to optimize agricultural profits per unit land and water without compromising agricultural economic viability, water quality, or the environment. Success depends not only on availability of funds but also on technical feasibility and cost-effectiveness, availability of technical assistance, and ability and willingness of growers. Other factors such as soils and topography, micro-climate, markets, etc., play important roles as well. Implementation of efficiency measures requires consideration for crops grown, groundwater and/or surface water availability, and water quality, flow and timing, energy efficiency, and other benefits to the growers to provide

regional benefits. Comprehensive implementation of efficiency measures must, to the extent of possible, include multi-purpose and multi-benefit projects.

Reducing ET requires precise application of water. Stressing crops through regulated deficit irrigation (RDI) is one approach that requires careful scheduling and application of water and may have additional costs and adverse impacts on crop quality or soil salinity.

Many growers are concerned about existing and potential water use efficiency legislation and believe that implementing efficiency measures could affect their water rights. They believe that conserved water may be used by others, causing loss of rights to the conserved water. This belief may impede implementation of water use efficiency strategies. It is believed that the water rights of agencies implementing efficiency measures will be protected, however, there are claims that the State Board has not recognized and protected conserved water.

Measurement and Evaluation. Lack of data is an obstacle for assessing irrigation efficiencies and planning for further improvement. The County lacks comprehensive County-wide data on cropped area under various methods of irrigation, applied water, crop water use, irrigation efficiency, water savings, and the cost of irrigation improvements per unit of saved water. Collection, management and dissemination of data to growers, and water resource planners are necessary for promoting increased water use efficiency.

Dry-Year Considerations. In dry years, growers that rely on state water deliveries are compelled to reduce irrigated acreage to cope with the lack of water and implement extraordinary water use efficiency or even land fallowing. While agricultural water suppliers deal in a variety of ways with water shortages and droughts, there is a need for an agricultural drought book.

4.7.4.1.4 *Recommendations to Achieve More Agricultural Water Use Efficiency*

1. Coordinate with appropriate local entities to disseminate information on conservation best management practices and identify and establish priorities for grant programs and other incentives. Priority funding may be for technical, planning and financial assistance to improve water use efficiency including implementation, monitoring and reporting of certain programs.
2. Coordinate with appropriate local entities to improve online data collection and dissemination networks to provide growers with immediate meteorological and hydrological information on climate, soil conditions, and crop water needs.
3. Coordinate with the appropriate local entities to develop methods to quantify water savings and costs associated with hardware upgrades, water management, and ET reduction projects identified in this strategy.

4.7.4.2 Urban and Rural Water Use Efficiency

Urban and rural water use efficiency results in benefits to water supply and water quality through technological and behavioral improvements that decrease indoor and outdoor residential, commercial, industrial, and institutional water use. Water use efficiency has multiple benefits. Excessive urban and rural water use result in increased runoff, groundwater overdraft, groundwater contamination, excessive flows to wastewater treatment plants, and increased green waste in the landfills. The volume and timing of surface water diversions to meet excessive use of water can produce environmental impacts. The impacts have substantial economic and financial consequences for water suppliers and consumers.

The recent challenges to California's water supply include:

4. Environmental Degradation
5. Legal and Regulatory Actions
6. Climate Change
7. Drought
8. Water Quality

In response to these challenges, California's government has responded in different ways over the past decade and has made substantial progress in developing mechanisms for further water conservation by 2020 that affect County water users. The major actions taken are the Governor's 2009 plan for 20 percent water use reduction target by 2020 which led to major water conservation legislation in 2009. Also of significance is the updating of the best management plans (BMPs) and the development of and requirements specified in the updated Model Water Efficient Landscape Ordinance, which is expected to result in significant water conservation in landscape irrigation.

The draft 20X2020 Water Conservation Plan recommendations include:

1. Establish a foundation for a statewide conservation strategy
2. Reduce landscape irrigation demand
3. Reduce water waste
4. Reinforce efficiency codes and related BMPs
5. Provide financial incentives
6. Implement statewide conservation public information and outreach campaigns
7. Provide new or exercise exhibiting enforcement mechanisms to facilitate water conservation
8. Investigate potential flexible implantation measures

9. Increase the use of recycled water and non-traditional sources of water

4.7.4.2.1 *Potential Benefits of Urban and Rural Water Use Efficiency*

Drought Preparedness. The primary benefit of improving water use efficiency is the lowering of demand and the ability to cost-effectively stretch existing water supplies. Once viewed and invoked primarily as a temporary source of water supply in response to drought or emergency water shortage situations, water use efficiency and conservation approaches have become viable long-term "supply options", saving considerable capital and operating costs for utilities and consumers, avoiding environmental degradation, and creating multiple benefits. Reduced water demand will free up water in normal and wet years. Saved water can be carried over to another time if a supplier has surface or groundwater bank and returns it for use during drought years.

Sustainability. Water use efficiency is a foundational action for water use sustainability. In order to ensure that water uses are sustainable, water management at all levels-State, federal, regional, and local- must be based on three foundational actions: use water efficiently, protect water quality, and support environmental stewardship.

Environmental Benefits. Conservation of applied water may result in increased stream flows and water quality benefits. Conservation has the added benefit of increasing the amount of developed water available for human uses at no added cost to other users or the environment. The timing of such additional flows is often critical to maintaining endangered habitats. Water use efficiency can also reduce peak demand, curb runoff from landscape irrigation, and reduce green waste caused by inefficient watering of landscape.

Economic and Financial Benefits. One way to assess the benefits of a conservation measure is to compare the cost of producing an acre-foot of water supply savings implemented under the measure to the cost of acquiring and using one more acre-foot of supply. The avoided costs of developing a new supply, including the cost of distribution systems, water supply treatment facilities, and wastewater treatment facilities are benefits at the water agency level. These avoided costs include energy costs, which can be substantial component of water development, delivery, treatment, and use cost.

4.7.4.2.2 *Potential Costs of Urban and Rural Water Use Efficiency*

According to the CALFED report, costs can range from $223 per acre-foot to $522 per acre foot (CALFED 2006). Conservation's role in water management depends on a variety of regional and local considerations.

4.7.4.2.3 *Major Issues Facing Urban and Rural Water Use Efficiency*

Funding. Even in less challenging times it has been difficult to secure funding on the scale required to reap the full water supply and the economic and environmental benefits of water use efficiency. Also, as water use efficiency increases, revenue through rates decreases.

Increases in rates could be needed to offset the reduction in water sales and to fund various conservation programs.

Program Implementation. There are a number of challenges faced by agencies when implementing water conservation programs. A study sponsored by the California Urban Water Agencies (CUWA) identified a number of these implementation challenges for urban water conservation programs. The CUWA-sponsored study recommends collaborative action by agencies, further research, and continued State or federal support to address the implementation challenges. The CUWA study concludes that the program should be as easy as possible for customers; its design should be simple; it should provide customers with guidance on water efficient fixtures; it should be coordinated with other agencies regarding permitting or potential funding; and it should emphasize a high level of customer service.

Implementation of urban and rural water conservation measures requires local and state investment in not only changing the traditional water use fixtures and technologies to more water and advanced technologies, but changing water use behavior by customers. These actions require substantial investments, but sufficient funding has not been available and the recent State budget deficits and delays in grant program implementation. Changing water use habits requires public education, outreach, incentives and disincentives.

Data Collection. Easily retrievable, standardized, and comprehensive baseline data can be challenging to implement and maintain. Documentation and evaluation of the achievements attributed to water use facility projects and programs- vital elements of successful; water use efficiency efforts- need to be improved. Tracking water use in order to document savings is necessary to gain an accurate understanding of the full cost, value, impact, and direction of urban and rural water use efficiency strategies. The measurement of water use and providing it to the water user are essential to efficient water management. The quantification of benefits for many projects lacks the necessary level of scientific rigor.

At the State level, DWR has organized a statewide network of people to improve California's analytical capabilities in support of water management decisions and investments. Improving these analytical capabilities will require significant participation by local, state, and federal agencies, organizations and governments. DWR will collaborate with interested stakeholder to improve analytical tools and share data through a Statewide Water Analysis Network (SWAN). Due to lack of data integration among various planning efforts, in cooperation with the SWAN, DWR agreed to begin the effort improving information exchange. DWR has also developed the Digital Online Submittal Tool (DOST), Water Plan Information Exchange (WaterPIE), and Integrated Water Resources Information System (IRWIS). All of these databases will serve as important data collection and dissemination tools for water resources agencies throughout the State.

At a regional level, the County collects information for the Resource Management System.

Landscape uses significant amount of water. Without a water meter or a landscape dedicated water meter, it is difficult to accurately assess landscape water use and implement appropriate programs to prevent water waste. AB 1881 (2006) requires that retail water suppliers require a dedicated water meter for landscapes with area greater than 5000 square feet for all but single family residential new connections. This requirement will allow monitoring and collection of water use data for local agencies' implementation and enforcement of the agency's landscape ordinance.

4.7.4.2.4 *Recommendations to Achieve Urban and Rural Water Use Efficiency*

1. Agencies should continue to support the California Urban Water Conservation Council and participation of other stakeholders, to improve upon the best management practices reporting and standardize utility billing and reporting systems by customer type and units of measure and identify industrial water use customers by North American Industry Classification System (NAICS).
2. Continue with public outreach efforts by being a part of such agencies as Partners in Water Conservation (PIWC), a County group that takes part in activities such as distributing brochures and hosting workshops to promote smarter landscaping to conserve water.

4.7.4.3 Economic Incentives

Economic incentives include financial assistance, water pricing, and water market policies intended to influence water management. Economic incentives can influence the amount of use, time of use, wastewater volume, and source supply.

Examples of economic incentives include low interest loans, grants, and water rates and rate structures. Free services, rebates, and the use of tax revenues to partially fund water services also have a direct effect on the price paid by water users. Government financial assistance can provide incentives for integrated resource plans by regional and local agencies. Also, government financial assistance can help water suppliers make incentives available to their water users for a specific purpose. Assistance programs can also help align the economic and financial drivers (e.g. marginal costs) affecting local, regional, and statewide water management decisions to minimize working at cross-purposes and maximize the benefits of working cooperatively with consistent goals and objectives. As opposed to incentives, promote economic disincentive that can be used to discourage undesirable water use behavior.

Marginal cost pricing is one strategy to help promote more efficient water use. With marginal cost pricing, instead of being based on average unit costs, the volumetric rates to all customers would be based on the unit cost to the water purveyor of the last, and probably most expensive, source of supply. In a much milder form, marginal cost pricing for "new" customers (e.g. residents of a new subdivision) might reflect the average cost after factoring in the cost of the additional water supply needed for those customers. This price would be higher than that for existing customers.

DWR and the State Water Resource Control Board (State Board), and the California Department of Public Health (CDHP) have run multimillion dollar bond-funded programs which have provided grant and low interest rate loan money to many local agencies for integrated regional management, water conservation, water recycling, distribution system rehabilitation, groundwater storage, water quality improvement, conjunctive use projects, and drinking water treatment. These programs are intended to encourage local agencies to adopt water management practices which have a statewide as well as local benefit.

4.7.4.3.1 *Potential Benefits of Economic Incentives*

A major purpose of economic incentives is to promote water management practices that meet federal, State, regional, and local policy goals. Incentives may produce environmental or social benefits, or avoid or delay construction of new water supply projects by promoting water use efficiency. When water costs increase, for example, customers have a choice to either pay the higher water bill or find ways to use less water, such as using a broom and a blower to clean sidewalks instead of a hose. Residential customers might install smart irrigation controllers or change to drought resistant landscaping. Industrial users may adopt process technologies that use less water or move to on-site recycling. Agricultural users may shift crop types, change their irrigation technology or reduce acreage they irrigate.

It is difficult to quantify benefits provided by economic incentives since the incentives influence decisions on other management strategies that produce their own benefits. Economic incentives can be used to influence development of water supply augmentation or demand reduction programs that promote regional self sufficiency. For example, grant funds from a State agency can help promote recycling by reducing its cost to local suppliers. Similarly, a wholesale water agency might make financial assistance available to retail water purveyors to encourage implementation of projects or programs that would benefit the region. Financial assistance can also be used to achieve beneficial changes in water system storage, conveyance, and treatment operations. The willingness of a water agency to participate in water marketing can also influenced by economic incentives.

4.7.4.3.2 *Potential Costs of Economic Incentives*

One financial cost of an incentive program to a water purveyor or government agency is the cost of its creation and administration, including the costs of arranging bond funding or low interest rate financing. Grant programs include the cost to the taxpayers of obtaining and repaying grant funds. Other costs would be associated with the adoption of water management strategies or water use behaviors- including forgoing some after use- that may result. The costs of the economic incentives will depend on how the incentives are integrated with other management strategies. As with other management strategies, economic incentives must be specific to the circumstances and water management goals of each individual water supplier.

Another type of cost can arise from the possibility that an incentive will result in actions not aligned with policy goals or that incentives will operate at cross purposes (i.e. have

unintended consequences). To the extent that resources are misallocated, a loss in economic, social and/ or environmental well-being will be incurred compared with fewer losses, if any, from a better allocation of resources.

4.7.4.3.3 *Major Issues Facing Additional Economic Incentives*

Selecting Appropriate Water Rates. A major consideration is determining what rates to charge customers while ensuring that costs of providing the water (including conveyance, treatment, and distribution) and treating and disposing of the wastewater are recovered. Also, managing water rate changes during water shortages can be challenging since incremental costs of supply can both increase dramatically and change rapidly, making it more difficult to recover costs.

Incidence of Costs of Incentives. Economic incentives can affect social equity when those incurring the costs of providing incentives through higher taxes or fees do not receive a fair share of the benefits that the incentives are expected to generate. As an example, increasing the costs for agricultural water supplies increase the efficiency of on-farm water use, but can also induce changes in crop patterns that result in lower farm employment. Communities dependent on farm production may by disproportionately affected. In the urban sector, if water rate changes reduce the use of ornamental landscaping, jobs that depend on establishing and maintaining landscaping could be lost.

Incentives for water transfers can result in more water moving out of agricultural production and into other uses on a temporary or permanent basis. Communities supplying inputs to farm production through farm labor, farm equipment sales and repair, crop harvesting, hauling, and storage services; and banking, legal, and farm management services may be adversely affected. This is a bigger issue in communities more heavily dependent on supplying these inputs.

Environmental Justice. Pricing policies that are designed to promote efficiency may affect the ability of disadvantaged populations to purchase sufficient water to maintain a minimal lifestyle. Some type of lifeline rate may be desirable in these cases. Also, obligations placed on the general fund through bond measures adopted to provide financial incentives creates repayment burdens that jeopardize funding capacity available for social programs that benefit the disadvantageous.

4.7.4.3.4 *Recommendations to Help Promote Economic Incentives.*

1. Institute water rates that support better water management based on the unique conditions in each water service area.
    a. Use volumetric pricing wherever practicable and economically efficient
    b. Use tiered pricing to the extent that it improves water management, including consideration of higher prices for water in excess of agricultural and urban vegetation management requirements.
    c. Recover more costs from variable charges and fewer costs from taxes and fixed water charges as is financially prudent

2. The County should consider coordinating with local agencies in using planning methods and adopting policies that promote long-run water use efficiency on a regional basis while accounting for policies on environmental and social well-being.

4.7.5 Optimize Use of the Nacimiento Water Project

The Nacimiento Water Project (NWP) is described in Section 3.2.4. Currently, 9,655 AFY of water available from the project is subscribed for and 6,095 AFY is unsubscribed for. The following are examples of how the use of the NWP could be optimized.

Unsubscribed Urban Use: This would entail direct delivery of the unsubscribed water to existing or new urban participants.

Unsubscribed Non-Urban Use: This would entail delivery to new rural and/or agricultural participants directly or via wheeling through existing participants' infrastructure.

Groundwater Banking or Recharge: This would entail direct or in-lieu delivery of subscribed and/or unsubscribed water to a recharge location for later extraction and/or to benefit the groundwater basin. In-lieu delivery refers to delivering additional NWP water to existing participants in-lieu of those existing participants pumping groundwater.

Exchanges: This would entail using the unsubscribed water in exchange of a currently used water resource. Examples include connecting CMC or Cal Poly to the NWP and freeing up State Water and/or Whale Rock Reservoir water for use by others; the City of San Luis Obispo utilizing additional water from the NWP and freeing up Salinas Reservoir water for use by others; or delivering unsubscribed water to urban areas to free up groundwater for rural and/or agricultural users.

4.7.5.1 Potential Benefits of Optimizing the use of the Nacimiento Water Project

Unsubscribed Urban/Non-Urban Use: Direct delivery of the unsubscribed water may offset demand on another water resource, such as groundwater, and/or eliminate the need to implement additional water supply projects, depending on the projected water supply deficiency.

Groundwater Banking or Recharge: Since unused NWP water, per contract provisions, cannot be "stored" in the reservoir and accumulated for later use, taking delivery of the unused water for recharge into the Paso Robles Groundwater Basin could improve basin conditions and improve supply reliability for participants in the banking and/or recharge program. Such a program could also make NWP water available annually for beneficial use.

Exchanges: Exchanges would allow those entities with water supply needs that would not feasibly be able to connect directly to the NWP to receive a supply from a source that they are already connected to, or that would be more feasible to connect to. Such an exchange promotes use of existing water supply systems ahead of developing new supplies.

4.7.5.2 Potential Cost of Optimizing the use of the Nacimiento Water Project

Unsubscribed Urban/Non-Urban Use: Costs include those for NWP operations and maintenance and the costs of any improvements to local treatment and/or delivery systems needed to convey the additional water. New participants in the NWP, or existing participants seeking to use more than their proportionate share of the unsubscribed water available, would also need to consider the cost to "buy-in" to the NWP, essentially reimbursing the original participants for the cost of the existing infrastructure. Costs would also be incurred if the water is wheeled through the existing infrastructure of an entity to the new participant.

Groundwater Banking or Recharge: Costs include those for NWP operations and maintenance and the costs of developing (or improving in the case of an in-lieu banking/recharge program) a local treatment and/or delivery system to and into (if direct) the recharge locations. A cost to "buy-in" to the NWP may also be incurred depending on the program participants. Costs may also be incurred if the water is wheeled through the existing infrastructure of an entity. Additional costs for groundwater banking or recharge projects are described in Section 3.8.9, which include the legal and institutional issues involved with groundwater banking while preserving the water rights of the overlying users.

Exchanges: Costs to consider include those associated with the difference in cost between an existing NWP participant to take additional NWP water versus the supply to be exchanged, and any other costs that participant may require. The exchange beneficiary may also incur costs for modifying their local treatment and/or delivery systems to take the water from the exchanged source of supply.

4.7.5.3 Major Issues Facing Optimization of the use of the Nacimiento Water Project

The affordability, potential participants/beneficiaries, and mechanism for funding the options for optimizing the NWP would need to be considered and determined.

Unsubscribed Urban Use: Existing participants have evaluated their future water needs and have subscribed for a quantity of water to meet their needs. Additional use of NWP water by existing participants would more likely occur via mechanisms discussed below.

Challenges for new urban participants include the affordability of buying in to the NWP and developing adequate infrastructure to take delivery of the water since it is a raw water supply, determining a fair buy-in cost, and the process by which new participants are considered (i.e. in the EIR versus not in the EIR) as described in Section 3.2.4. The quantity of water available depends on where along the NWP infrastructure the new participant is located.

Unsubscribed Non-Urban Use: In addition to the challenges for new urban participants, non-urban participants may face challenges due to local agency and/or County policies regarding wheeling water, annexations and use of surface water in rural and agricultural

areas. Rural and agricultural water users are largely individualized, which adds to the institutional and financial challenges of implementing a project to deliver NWP to rural and agricultural areas.

Groundwater Banking or Recharge: Challenges to implementing a groundwater banking or recharge project include defining the project participants and beneficiaries, institutional considerations regarding those that would be affected by the project but are unwilling to participate, determining fair costs for all beneficiaries, and, mainly for direct delivery, the ability of the groundwater basin to accept recharge, the environmental impacts of developing recharge facilities, accountability of the recharged water and water quality compatibility. For a banking project, appropriate design, operation and monitoring would be necessary to ensure extractions of banked water would not have a negative impact on the groundwater basin with respect to without project conditions.

While there are some losses to the basin that result in an overall benefit to its safe yield if done in perpetuity, banking projects are generally a reliability improvement option versus an option to provide additional supply since the amount of NWP water available annually would likely be taken directly to meet demands over time. The same may be true for a recharge project, unless there was agreement to utilize unsubscribed water for recharging the basin on a permanent basis.

Additional issues for groundwater banking or recharge projects are described in Section 3.8.9.

Exchanges: In addition to those listed in Unsubscribed Urban/Non-Urban Use above, challenges to implementing an exchange program include the feasibility of connecting to an exchanged supply source if not connected already, water rights issues regarding the place of use of the exchanged supply source, determining the institutional arrangements needed and associated costs, affordability, and stakeholder impacts.

4.7.5.4 Recommendations to Optimize the use of the Nacimiento Water Project

The NWP is a reliable source of water due to the nature of contract provisions and the quantity of the District's allocation as compared to the capacity of the reservoir. It is less likely that any of the District's allocation would be permanently set aside for reliability purposes. Given the affordability and institutional challenges associated with new urban or non-urban participants, and associated with a banking/recharge program that would likely only have a short-term benefit, and that potential direct urban participants would conduct their own evaluation regarding the NWP as a water supply option, the District should coordinate with interested entities to evaluate the potential for optimizing the use of the NWP by implementing exchange programs utilizing existing water supply systems that the District operates. Steps for evaluating exchange opportunities may include:

- Developing exchange scenarios and evaluating each scenario regarding the needs, willingness of participants, capacity availability, stakeholder review and/or approval, exchange valuation assessments, and water rights issues
- Conducting flow tests or reservoir releases to evaluate the benefit of exchange scenarios

4.7.6 Land Use Management

More efficient and effective land use patterns promote integrated regional water management (IRWM). Integrating land use and water management consists of planning for the housing and economic development needs of a growing population while providing for the efficient use of water, water quality, energy, and other resources. The way in which we use land- the pattern and type of land use and transportation and the level of intensity- have a direct relationship to water supply and quality, flood management, and other water issues.

The County's projected growth, urban, and rural development increases the pressure on natural resource conservation and amplifies the need for a comprehensive land use decision-making process. Managing rural development and promoting strategic growth to govern the conversion of agricultural land to rural development should reduce the stress on limited groundwater resources. This advisory resource management strategy describes how sustainable land use decision can improve water supply and quality, increase flood protection, conserve vital natural habitat, and lead to more efficient energy use.

Pollution Prevention. Proper land use management practices are important for pollution prevention, preventing sediment and pollutants from entering the source water. These pollutants are generated from land use activities associated with development, animal grazing, uncontrolled urban and rural runoff from development activities, and discharges from marinas and recreational boating activities. The Regional Water Quality Control Board has several point and non-point source pollution control programs to manage pollution.

Salt Management. Salts have been managed and mismanaged over the centuries in all parts of the globe. Mismanagement has often been attributable to a poor understanding of the dynamics of salt movement (how displaced salt can accumulate over time to salinize soils and aquifers; in much the same way as sweeping a room displaces dust). Unless sufficient dust is picked up and taken out of the room at some point, it will continue to accumulate and re-disperse, ultimately making the room unfit for use. Traditional irrigation practices, residential users (e.g. water softeners), and some industries can lead to salt accumulation and degradation of groundwater quality.

Developed Area Runoff Management. Developed area runoff management is a broad series of activities to manage both storm water and dry weather runoff for urban and rural areas. Dry weather runoff occurs when, for example, excess landscape irrigation flows to the storm drain. Traditionally, urban or rural runoff management was viewed as a response

to flood control concerns resulting from the effects of development or urbanization. Concerns about water quality impacts of runoff led water agencies to look at watershed approaches to control runoff and provide other benefits.

Urbanization and rural development alter flow pathways, water storage, pollutant levels, rates of evaporation, groundwater recharge, surface runoff, the timing and extent of flooding, the sediment yield of rivers, and the suitability and viability of aquatic habitats. Development creates impervious surfaces resulting in the loss of infiltration of storm water into subsurface aquifers. These impervious surfaces collect pollutants that are washed off to surface waters during rain events. The impervious surfaces also increase runoff volumes and velocities, resulting in stream bank erosion, and potential flooding problems downstream. Because of the emphasis on removing the water quickly, the opportunity to use storm-generated runoff for multiple benefits is reduced.

Agricultural Lands Stewardship. Agricultural lands stewardship broadly means the conservation and protection of the environment. Land managers practice stewardship by conserving and improving land for food, fiber and biofuels production, watershed functions, soil, air, energy, plant and animal and other conservation purposes. Agricultural lands stewardship also protects open space and the traditional characteristics of rural communities. Moreover, it helps landowners maintain their farms and ranches rather than being forced to sell their land because of pressure from urban development.

There are many ways that agricultural lands can be managed to conserve and/or protect water resources. Croplands can be managed to reduce or avoid stream bank erosion or storm water runoff. Stream bank stabilization may include a buffer strip of riparian vegetation which slows bank erosion and filters drainage water from the fields. Measures such as these can minimize or reduce the effects of agricultural practices on the environment and help meet governmental regulatory requirements while also reducing long-term maintenance problems for the landowner.

While good agricultural land management can successfully prevent many problems discussed above, implementing such measures are costly in terms of time, money or productive lands for crop production. Such costs are often immediate while the potential problems associated with soil erosion or other issues are long-term costs.

Recharge Areas Protection. Recharge areas are those areas that provide the primary means of replenishing groundwater. Good natural recharge areas are those where good quality surface water is able to percolate through the sediments and rocks to the saturated zone, which contains groundwater. If recharge areas cease functioning properly, there may not be sufficient groundwater for storage or use. Protection of recharge areas requires a number of actions based on two primary goals:

1. Ensuring that areas suitable for recharge continue to be capable of adequate recharge rather than covered by urban infrastructure, such as buildings and roads

2. Preventing pollutants from entering the groundwater to avoid expensive treatment that may be needed prior to potable, agricultural, or industrial beneficial uses.

Water Dependent Recreation Planning. By incorporating planning for water-dependent recreation activities in water projects, water managers play a critical role in ensuring that people today and into the future are able to enjoy such activities. For example, acquiring land for picnic tables and accessible trails near a planned reservoir can provide visitors a relaxing day by the water. If these were not included, a valuable water dependent recreation opportunity is missed.

Demand for water dependent recreation opportunities can become so great that it exceeds the capacity of the current infrastructure. As a result, many of these facilities could be overused, jeopardizing natural and cultural resources and degrading the recreational experience.

Watershed Management. Watershed management is the process of creating and implementing plans, programs, projects, and activities to restore, sustain, and enhance watershed functions. These functions provide the goods, services and values desired by the community affected by the conditions within a watershed boundary. In California, the practice of community-based watershed has evolved as an effective approach to natural resource management practiced in hundreds of watersheds throughout the state. These community-based efforts are carried out with the active support, assistance, and participation of numerous state agencies and programs.

4.7.6.1 Potential Benefits from Land Use Management

Land use management has many topics that can have benefits to local and regional water supply. While the benefits from these topics are different they all lead to these four main benefits:

1. Water Supply. Reducing municipal and industrial water demand through water use efficiency, recycling, capturing and reusing storm water, recharging and protecting groundwater, protecting ground and surface water from failed septic systems, and encouraging growth in areas with sufficient reliable water supplies.
2. Flood Management. Keeping people and structures out of flood hazard zones, reducing runoff volumes and intensity, and preserving ecological resources.
3. Water Quality. Reducing runoff volumes and improving runoff water quality.
4. Climate Change. Reducing green house gas emissions.

Some additional benefits from land use management are included below.

Environmental Benefits. Environmental benefits from land use management include improved efficiency, reduced energy consumption while maintaining working landscapes, habitats, and open spaces. In addition to these direct environmental benefits of land

stewardship, farmlands proximate to urban populations can benefit the environment by providing local sources of food requiring less transportation and storage, thereby conserving energy and land. While environmental benefits can successfully prevent many problems discussed above, implementing such measures are costly. Such costs are often immediate while the potential problems are long-term costs.

Recreational Opportunities. Preserving open spaces provides a source of public recreational activities.

4.7.6.2 Potential Cost of Land Use Management

Costs to local individuals for pollution prevention can be cost prohibitive and exceed the financial resources available to local agricultural operations.

Cost Associated with Pollution Prevention. According to the 2008 USEPA Clean Water Needs Survey, California has more than $21 billion of needs to prevent both point source and non-point source (NPS) pollution. This survey though, emphasized the point source discharges, which represents $20 billion of the needs, and likely underestimated the cost of measure to adequately prevent NPS pollution. An assessment of water quality conditions in California shows that NPS pollution has the greatest effect on water quality. It affects some of the largest economic segments of the state's economy, from agricultural development to the tourist industry.

Salt Management. A 2007 study illustrates the wide range of costs that a single industry might face in dealing with salt management. Rubin, Sundig, and Berkman (2007) investigated the cost of managing TDS at food processing plants and found that costs for removing total dissolved solids (TDS) by various means ranged from $258 per ton (deep well injection of collected untreated effluent) to over $8,000 per ton (end of pipe effluent treatment). While cost variability is high, multiple salt management options are necessary because the least-cost salt management option appropriate for a given area may be inconsistent with sustainability when considered in a broader context of local, regional or statewide salt management, energy consumption, water availability or other resource issues.

Recharge Areas Protection. Some of the costs that may be associated with protecting recharge areas are:

- Purchase or lease price of the land that is to be used for a recharge area
- Design and construction of facilities
- Land that is reserved for recharge areas cannot be used for other purposes that might provide a significant income for the land owner and tax revenues for the government
- If a local government agency owns the land, there is no tax income for the county

By not protecting recharge areas, water supply can be lost. The growth of urban areas, with roads, freeways, parking lots, and large warehouse type buildings, means that many more areas no longer allow runoff to infiltrate into the ground. Instead, the runoff flows rapidly into streams which peak more quickly and at higher flow rates than before the urban facilities were built. This runoff may create flood flows and is lost to groundwater recharge and may require the expense of other facilities to provide a substitute for that lost recharge. In a few urban areas, injection wells have been built to take the place of recharge areas that were lost to urban development. Injection wells are expensive, require careful technical control, and are not always successful, but they may be cost effective in the face of the high costs of urban land in many cities.

Water Dependent Recreation. Information is not readily available on the statewide costs of water-dependent recreation. Yet there is a need to increase the available recreation facilities and services to accommodate population growth. However, it is difficult to translate this increased need into specific recreation costs. Since the population is estimated to nearly double, costs will likely escalate accordingly. But population growth is not the only concern. California's climate continues to change, causing varied impacts, the public's demand for water will increase, and new facilities will also be necessary to meet that demand. The potentially large costs due to climate change have also yet to be calculated.

Watershed Management. Costs associated with watershed management depend on many factors, such as the size of the watershed; the land and water use activities occurring in the watershed; the condition and trends of the watershed; and the values, goods, and services demanded from the watershed.

Much of the cost of watershed management is associated with the specific land or water use activities occurring within the watershed on a recurring basis and is coincidental with these uses. Additional or external costs of watershed management tend to be associated with interventions designed to influence management or improve the results of management, to offer specific protection for certain functions and values, or to restore the functional conditions and associated uses of a watershed.

Agricultural Land Management. While good agricultural land management can successfully prevent many problems, implementing such measures are costly in terms of time, money or productive lands for crop production. Such costs are often immediate while the potential problems associated with soil erosion or other issues are long-term costs.

4.7.6.3 Major Issues Facing Land Use Management

Disincentives for Change. Local governments may not promote or implement resource-efficient development patterns for many legitimate reasons. Their decisions are guided by one or more of the following reasons:

- Landownership
- Marketing of perceived consumer preferences for single family homes with yards

- Community resistance to infill projects and/or higher density development
- Traditional and antiquated local and zoning ordinances that segregate retail uses from residential uses
- The added cost to conduct coordinated regional planning efforts
- The cost and potential liability associated with pursuing infill projects
- Environmental mitigation strategies that encourage lower density development

Given all of these factors in the equation of local land use planning and development, changing standards could be a significant and expensive public policy undertaking .

Funding. Funding to support salt management planning, project development, project operation and maintenance and salinity monitoring has been absent or insufficient. With very few exceptions, public funding dispersed through grants or loans to agencies and organizations has excluded or severely limited funding for planning efforts. Salt management on the scale needed for sustainability in the County may require a great deal of coordination planning at the local and regional level.

The two main aspects of implementing urban or rural runoff management measures are source control, including education, and structural controls. In highly urbanized areas, major costs for structural control include purchasing land for facilities and constructing, operating and maintaining treatment facilities. Local municipalities have limited ability to pay for retrofitting existing developed areas within existing budgets. Some are concerned about the economic impacts of raising taxes and requiring residents and businesses to pay for retrofitting existing development.

Financing can transcend all other issues affecting outdoor recreation, including water-dependent recreation. Funding issues fall into two categories:

1. Planning and development of new recreational sites financed through water and other development projects
2. The operation and maintenance of recreation sites once they are in place.

When water resources projects are being built or upgraded, there may not be enough funding to fully incorporate recreation. One reason for this is that the beneficiaries of recreation may be different from the other beneficiaries of the water project, requiring complex funding mechanisms to fully support recreation planning.

Maintenance of recreation facilities may be more susceptible to funding cuts in a bad economy than for other resources thought to be more essential. Without reliable funding, it is difficult for recreation provides to deliver quality, consistent and relevant facilities and services to meet growing demand.

Lack of Integration of Developable Area Runoff Management. Land use planning is not conducted on a watershed basis. Many agencies spend millions of dollars annually addressing urban or rural runoff problems with very little interagency coordination (both within the municipality and with other neighboring municipalities) even though downstream communities can be impacted by the activities upstream. Internal communications within local government can be improved to ensure that program goals and direction of one branch do not conflict with those of another; and local governments need to communicate with one another to ensure that land use planning on a regional level is complimentary across jurisdictional boundaries. Retrofitting existing development may not be feasible and may be only implementable on a voluntary basis.

Water Quality. The movement of pollutants in urban or rural runoff is a concern. Runoff contains chemical constituents and pathogenic indicator organisms that could impair water quality. Studies by EPA and the U.S. Geological Survey indicate that all monitored pollutants stayed within the top 16 centimeters of the soil in the recharge basins. The actual threat to groundwater quality from recharging urban or rural runoff is dependent on several factors, including soil type, source control, pretreatment, and solubility of pollutants, maintenance of recharge basins, current and past land use, depth to groundwater, and the method of infiltration used.

Water quality can both affect and be affected by water-dependent recreation. Untreated sewage released into the ocean has led to highly publicized closures of public beaches. Fertilizers and chemicals from agricultural runoff also contribute to poor water quality in recreation areas. Contaminated lakes, rivers, and streams not only present health risks to those participating in water-contact recreation, but can affect water quality. Human source contamination, such as body contact, untreated sewage, and petroleum products discharged from houseboats and other pleasure craft can be significant problem to reservoirs storing drinking water.

Land Use Alter Hydrologic Cycles. The hydrologic cycle includes snow or rain, the flow of water into the atmosphere. How the land is managed can reduce rainwater infiltration and the timing and, in some cases, the volume of runoff. Storms, especially in urban areas but also in some rural areas, are now marked by high intensity runoff over short periods. This creates greater flood risk and reduces the ability to capture water for needs during dry times. From an ecological perspective, this compression of runoffs robs the streams and landscape of groundwater. This leads to dry land, a shift in vegetation types, lower and warmer streams, and deterioration of stream channels, all of which lead to shifts in the plants and animals that can be supported. In some areas, the diversion of water from streams in the watershed to other regions outside the watershed, or the application of water imported from outside the watershed, has changed ecological functions or altered the flow of water through the watershed.

4.7.6.4 Recommendations for Implementation of Land Use Management

Pollution Prevention

1. Pollution prevention and management of water quality impairments should be based on a watershed approach. A watershed-based approach adds value, reduces cost, promotes cross-media, and integrates programmatic and regional strategies.
2. Agencies should establish drinking water source and wellhead protection programs to shield drinking water sources and groundwater recharge areas from contamination. These source protection programs should then be incorporated into local land use plans and policies.
3. All entities that make decisions with a bearing on salt management should be participating in regional salt management planning, monitoring and implementation projects. Effective and sustainable salt management decisions rest in the hands of a wide range of water managers, regulators, facility operators, policy makers, landowners and other stakeholders in any given watershed. These entities should strive to coordinate their efforts where possible in order to utilize resources efficiently, develop regional solutions to regional problems, optimize funding opportunities and achieve a salt balance in the basin as quickly as possible.

Developable Area Runoff Management

1. Design recharge basins to minimize physical, chemical, or biological clogging. Periodically excavate recharge basins when needed to maintain infiltration capacity, develop groundwater management plan for protecting both the available quantity and quality of groundwater, and cooperate with vector control agencies to ensure the proper mosquito control mechanisms and maintenance practices are being followed.
2. Work with the development community to identify opportunities to address urban and rural runoff management, including low impact development, in development and redevelopment projects.
3. Communicate with citizens about pollution of runoff and what can be done about it by creating lists of locally accepted practices that could be used at the homeowner level to address urban runoff.

Agricultural Land Stewardship

1. Continue to implement County policies that enhance agricultural lands stewardship on high priority, productive agricultural lands. Focus on local agricultural infrastructure investment, marketing assistance, and the development of agricultural lands stewardship practices and strategies in cooperation with local, State and federal agricultural conservation entities.
2. Continue to include agricultural lands stewardship as an objective of the region's Integrated Regional Water Management Plan (IRWMP).

Recharge Protection

1. Develop a program to identify and map recharge areas
2. Consider developing a uniform method for analyzing the economic benefits and costs of recharge areas protection and provide guidance and assistance for economic feasibility analyses that could be used by project planners and funding agencies to assess recharge areas as compared with long-term reduction of water supplies, wellhead treatment, injection wells, or conversion to other land uses.

Water-Dependent Recreation

1. Participate in efforts to collect data on visitation rates versus reservoir water levels and downstream flow rates, and use this data to help optimize the timing of water that is released or held for recreation, to the degree possible consistent with other water needs.
2. Participate in efforts to inventory water facilities and measure their vulnerability to specific invasive species, prioritizing and developing preventive measures and response strategies for the most at risk facilities.
3. Participate in efforts to develop a strategy to reduce water quality impacts and recommend improvements in water recreation vehicles- such as stricter regulation outputs on gasoline engines on waterways.

Watershed Management

1. More effectively align agency goals and methods to reflect coordinated approaches to management using watersheds as the context for implementation and effectiveness measurement.
2. Provide a means of easy access to technical information such as geographic information system (GIS) layers, monitoring data, planning models and templates, assessment techniques, from multiple sources that are useful at multiple levels of decision-making.
3. Use a watershed approach to coordinate forest management; land use; agricultural land stewardship; integrated resources planning and other appropriate resource strategies and actions.
4. Increase the ability for precipitation to infiltrate into the ground; reduce surface runoff to a point where it better reflects a natural pattern of runoff retention. This practice is often described as reducing impervious surfaces within a watershed. Retain floodplain and other wetlands intact to the extent possible, in order to maintain or increase residence time of water in the watershed.

4.7.7 Recycled Water

One way to meet the current and future water demands of the County is to recycle water, that is, treat and reuse wastewater. Wastewater which is treated to a specified quality in order to be able to use it again is called recycled water. Although there are varied sources of wastewater, the discussion only addresses recycling of municipal wastewater from treatment plants.

Municipal wastewater originates primarily from domestic sources, but also includes wastewater from commercial, industrial, and institutional sources that discharge to a common collection system where it mixes with domestic water before treatment. The California Water Code provides the following definition for recycled water: “water which, as a result of treatment of wastewater, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.”

Recycled water use can serve many purposes:

1. An additional water source, which may also offset the need for additional freshwater supplies.
2. A drought resistant water supply.
3. A green alternative for treatment and disposal of wastewater.
4. A natural treatment through land application and a reduction in discharge of excess nutrients into surface waters.
5. A source of nutrients for crops or landscape plants.
6. A means to enhance environmental features, such as wetlands.

State regulations mandate that producers and users of recycled water comply with treatment and use restrictions to protect public health and water quality. The California Department of Public Health (CDPH) adopt water recycling criteria which are based on water source and quality, and specify sufficient treatment based on intended use and human exposure. The treatment objective is to remove pathogens and excess nutrients, making the water clean and safe for the intended uses. The criteria are regulated by the Regional Water Quality Control Boards through permits which specify wastewater treatment methods, approved uses of recycled water, and performance standards.

As the treatment level is increased from primary, secondary, tertiary to advanced, the permitted uses of recycling water are also increased. For example, municipal wastewater that has been treated to a specified quality (disinfected tertiary recycled water) can be used to irrigate school yards, parks and residential landscape, and may be suitable for industrial applications or use in office and industrial buildings for toilet flushing. Wastewater that has been treated to secondary levels is generally suitable for uses that do not include contact with food or people.

Unlike treated wastewater discharged to streams, water that is discharged to the ocean or other saline water bodies is considered no longer practically available for use and is termed "irrecoverable water." Where water recycling can capture municipal wastewater that would otherwise become irrecoverable water, water recycling represents a strategy that increases water supply. The State recognizes this distinction by classifying water recycling projects in coastal areas as new water supply. Because discharges to the ocean or brackish water bodies support few, if any, downstream beneficial uses, such discharges are excellent sources of wastewater for future recycling efforts.

As communities increase their levels of recycling, the volume of water that is discharged into a stream will be reduced, potentially adversely affecting downstream water rights or in stream beneficial uses. Recognizing this, California Water Code requires that prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater, that changes shall be reviewed by the State Water Resources Control Board (State Board) to ensure potential impacts to beneficial uses are considered before authorizing a change in the permitted discharge of municipal wastewater.

4.7.7.1 Potential Benefits of Water Recycling

Water recycling has the potential to provide a variety of benefits including reduced costs, increased reliability of supply, and increased availability of potable water. All of these benefits are derived from the primary benefit of using recycled water to increase local water supplies.

Water recycling plays a role in California's climate change mitigation efforts. Combustion of fossil fuels at power plants is a major source of greenhouse gas (GHG) emissions. A significant amount of the energy produced by those power plants is used by the water sector. Water recycling can provide a comparatively low energy source of local water using less energy than the importation of water from other regions or desalination of ocean and brackish water. The benefit is greatest where recycled water is available for applications, such as agricultural irrigation of nonfood crops, which do not demand the advanced levels of treatment or to lands that do not have a sustainable groundwater supply. The provision of recycled water for most urban applications requires tertiary treatment, which requires a greater amount of energy reducing the GHG savings.

Climate change is predicted to impact water supply, most notably altering the seasonal availability of water. Municipal water recycling is one of several water resource management tools that may be utilized by regions working cooperatively to help develop sustainable local water resources and meet water management goals and objectives. Recycled water cannot be directly used for potable applications, but recycled water can increase the availability of local potable water. Potable water is often used for applications, like irrigation, which do not require potable quality. Using recycled water for such applications provides potable water for more appropriate uses.

4.7.7.2 Potential Cost of Recycled Water

Given the variability of local conditions and their effect on treatment and distribution costs, the estimated range of capital and operational costs of water recycling range from $300 to $1,300 per acre foot of recycled water, but in some instances costs above this range are encountered (source: California Water Plan). The actual cost will depend on the quality of the wastewater, the level of treatment required, and the proximity of potential users to the source of the recycled water. Uses that require higher quality and/or have greater public health concerns will incur higher costs.

The cost to install new distribution systems is a major obstacle to the expansion of water recycling. Because recycled water is not classified as potable, regulatory constraints prohibit conveying recycled water and potable water in the same pipelines. Recycled water must be conveyed in a separate purple pipe distribution system that is labeled and readily distinguished from traditional water lines. The cost to install new purple pipe distribution mains from the treatment plants to users can be prohibitively expensive. As a consequence, it is more cost-effective to transport water to areas near treatment plants. However the users that could use large volumes of recycled water, such as agricultural users, are often the most distant from urban wastewater treatment plants. Establishment of local ordinances requiring upgrades to dual water distribution system (purple pipe) could bolster the acceptance and implementation of recycled water projects.

The potential for cross-connections is one of the challenges of separate pipeline systems for potable and non-potable water. As the name implies, a cross connection refers to the accidental connection of potable and non-potable systems, essentially contaminating the potable water systems. The potential for such errors will likely increase as a greater number of offices, commercial centers, and residences incorporate dual plumbing to provide non-potable water for irrigation, toilet flushing, and other permitted uses.

4.7.7.3 Major Issues Facing Water Recycling

Data Availability. Comprehensive studies on water recycling facilities to quantify water recycling efforts, characterize success and/or failures, or make informed decisions as to future endeavors and funding priorities are somewhat limited.

Affordability. The cost to provide recycled water can exceed the current consumer price of fresh water, but may be less than other new water sources such as importing water from other regions or desalination. Because a significant portion of the cost to implement water recycling is associated with the installation of core infrastructure such as treatment equipment and distribution mains, recycled water can be prohibitively expensive at the local level, and may be more cost effective on a regional scale.

The shortage of local funding to plan recycled water projects can slow the construction of new projects. Public funding and incentive measures should be provided to advance water recycling projects that provide local and regional benefits. The primary source of state

funding has been the Water Recycling Funding Program administered by the State Board, providing low interest loans and grants to local agencies. The DWR administers the Integrated Regional Water Management Plan (IRWM) Grant Program, which favors water recycling projects.

Water Quality. Public acceptance of recycled water depends on the confidence in the safety of the water. The following four water quality characteristics have been identified as being of particular concern:

1. Microbiological quality
2. Salinity
3. Heavy metals
4. Organic and Inorganic substances (pharmaceuticals, household chemicals, fertilizers, etc.)

Applying appropriate levels of treatment for specific uses assures the safe use of recycled water.

Conventional wastewater treatment plants are not designed to remove all organic wastes. The fate of organic waste constituents is variable and in some cases unknown. Further study is necessary to assess the health effects of these constituents. Organic chemicals are often present in extremely low concentrations that are difficult to measure.

Concentrations of heavy metals have been a concern and are closely monitored in recycled water. However, modern wastewater treatment processes are able to routinely remove more than 90 percent of heavy metals from wastewater before discharge. As technology continues to advance, concerns about the presence of heavy metals are expected to diminish.

The salinity of recycled water can limit its usefulness in salt sensitive applications such as landscaping, and agriculture. Salt is not removed by traditional wastewater treatment processes but through desalination (See section 3.8.12). Because each cycle of recycling concentrates additional salt, there are a limited number of times that water can be recycled unless advanced treatment, such as reverse osmosis, is used to remove the salts.

Water quality criteria for recycled water, established by the California Department of Public Health (CDPH), define water quality and treatment requirements are incorporated into the waste discharge or water reclamation permits which are issued by the Regional Boards to producers and users of recycled water. Extensive monitoring assures compliance with the requirements.

Potential Impacts. Communities that discharge wastewater to rivers, streams, or percolate to groundwater, contribute to the ambient water that is available downstream users. The implementation of water recycling in upstream communities would reduce the volume of

such discharges, potentially reducing the volume of ambient water available for downstream reuse and/or fulfillment of environmental needs. In some cases, downstream users may have rights to the use of discharged wastewater, potentially preventing upstream communities from implementing recycling.

Whether for storage or planned indirect use, the discharge of recycled water to wells, infiltration sires, or other locations underlain by permeable soil and geologic materials has the potential to introduce contaminants, including salts, into potable groundwater sources and aquifers. Presently California does not approve direct potable reuse projects, that is, where recycled water is used directly from a treatment plant into a drinking water supply.

4.7.7.4 Central Coast RWQCB Conditional Waiver

A concern was raised that the Central Coasts RWQCB's Agricultural Order No. R3-2011-0006, Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Order), would affect the use of recycled water in the County. This Order regulates discharges of waste from irrigated lands by requiring dischargers to comply with the terms and conditions of the Order to ensure that such discharges do not cause or contribute to the exceedance of any regional, State, or Federal numeric or narrative water quality standard.

Dischargers may have to implement best management practices, treatment or control measures, or change farming practices to meet water quality standards and achieve compliance with the Order. Discharges from irrigated lands regulated by this Order include discharges of waste to surface water and groundwater, such as irrigation return flows, tailwater, drainage water, subsurface drainage generated by irrigating crop land or by installing and operating drainage systems to lower the water table below irrigated lands (tile drains), stormwater runoff flowing from irrigated lands, stormwater runoff conveyed in channels or canals resulting from the discharge from irrigated lands, runoff resulting from frost control, and/or operational spills. These discharges can contain wastes that could affect the quality of waters of the State and impair beneficial uses.

Personal communication with Angela Schroeter with the Central Coast RWQCB indicated that there have been very few comments received regarding the Order's impact on the use of recycled water. The Order does not specifically mention nor preclude the use of recycled water. The Central Coast RWQCB does not intend to prevent the use of recycled water for irrigation or for groundwater recharge. The individual monitoring and control measures mentioned in the Order are not dependent on the type of water that runs off a property. It depends more on the agricultural operation and whether runoff that contains chemicals is reaching a receiving water that could be impacted. This Order should have no impact on the use of recycled water in the County.

4.7.7.5 Recommendations to Increase Recycled Water Use

1. Although it is increasingly evident that water recycling projects have been and continue to be, implemented throughout the state, a comprehensive, current inventory

of recycling facilities and programs does not exist. The County should encourage the State Board to establish a centralized data repository of recycling facilities and programs that contains basic information such as type of treatment, volume of water recycled, uses of recycled water, and cost of operation.

2. The County should work with state agencies including the State Board, Regional Boards, CDPH, and DWR should develop a uniform interpretation of state standards for inclusion in regulatory programs and IRWMPs, and clarify regulations pertaining to water recycling including permitting procedures, health regulations and the impact on water quality.

3. The County should encourage the State to expedite the availability of funding for the preparation of regional salt management plans in order to increase the potential of recycled water.

4.7.8 Optimize Use of State Water Project

The State Water Project (SWP) is described in Section 3.4.1. Currently, 9,727 AFY of water available from the project is subscribed and 15,273 AFY is unsubscribed. After establishing the priorities for existing participants in consideration of contracts and prior financial contributions, the affordability of, potential participants/beneficiaries among, and mechanism for funding the options for optimizing the State Water Project system would need to be considered and determined for the unsubscribed amount. The following are examples of how the use of the SWP could be optimized.

Unsubscribed Urban Use: This would entail direct delivery, or delivery via wheeling through existing participants' infrastructure, of the unsubscribed water to existing or new urban participants.

Unsubscribed Non-Urban Use: This would entail delivery to new rural and/or agricultural participants directly or via wheeling through existing participants' infrastructure.

Groundwater Banking or Recharge: This would entail direct or in-lieu delivery of subscribed and/or unsubscribed water to a recharge location for later extraction and/or to benefit a groundwater basin. In-lieu delivery refers to delivering additional SWP water to existing participants in-lieu of those existing participants pumping groundwater.

Drought Buffer: This would entail permanently reserving any unsubscribed water for use when SWP deliveries are less than 100 percent. Drought buffer could also entail storing SWP locally or using SWP water "in-lieu" of local supplies. This would allow local supplies like groundwater or Lopez Reservoir water to remain in storage for use during droughts or when demands exceed SWP deliveries.

Exchanges: This would entail using the unsubscribed water in exchange of a currently used water resource. Examples include increasing SWP deliveries to CMC and freeing up Whale Rock Reservoir water for use by others; Lopez Turn-out participants utilizing

additional water from the SWP and freeing up Lopez Reservoir water for use by others; or delivering unsubscribed water to urban areas to free up groundwater for rural and/or agricultural users.

4.7.8.1 Potential Benefits of Optimizing the Use of the State Water Project

Unsubscribed Urban/Non-Urban Use: Direct delivery of the unsubscribed water may offset demand on another water resource, such as groundwater, and/or eliminate the need to implement additional water supply projects, depending on the projected water supply deficiency.

Groundwater Banking or Recharge: Since the SWP water available can vary year to year based on hydrology and environmental regulations, taking delivery of the available unused water for recharge into a groundwater basin would improve basin conditions and improve supply reliability for participants in the banking and/or recharge program and put the SWP water available annually to beneficial use.

Drought Buffer: The SWP cannot always deliver 100 percent of allocations. To receive a greater portion of State Water during these shortages (up to their full allocation), participants can enter into "Drought Buffer Water Agreements" with the District for use of an additional portion of the District's SWP allocation. For example, when the SWP can only deliver 50 percent of contracted allocations, an agency with 100 AFY allocation and 100 AFY drought buffer allocation can still receive 100 AFY WSA – 50 percent of their 100 AFY allocation plus 50 percent of their 100 AFY drought buffer allocation equals 100 AFY.

Using SWP water in-lieu of local supplies will preserve local groundwater and surface water supplies for use during droughts or when demands exceed SWP deliveries.

Exchanges: Exchanges would allow those entities with water supply needs that would not feasibly be able to connect directly to the SWP to receive a supply from a source they are already connected to, or that would be more feasible to connect to. This puts existing water supply systems to use ahead of developing new supplies.

4.7.8.2 Potential Cost of Optimizing the use of the State Water Project

Unsubscribed Urban/Non-Urban Use: Costs include those for SWP operations and maintenance and the costs of any improvements to local treatment and/or delivery systems needed to convey the additional water. New participants in the SWP, or existing participants seeking to use more than their proportionate share of the unsubscribed water available, would also need to consider the cost to "buy-in" to the SWP, essentially reimbursing the original participants for the cost of the existing infrastructure. Costs would also be incurred if the water is wheeled through the existing infrastructure of an entity to the new participant.

Groundwater Banking or Recharge: Costs include those for SWP operations and maintenance and the costs of developing (or improving in the case of an in-lieu banking/recharge program) a local treatment and/or delivery system to and into (if direct)

the recharge locations. A cost to “buy-in” to the SWP may also be incurred depending on the program participants. Costs may also be incurred if the water is wheeled through the existing infrastructure of an entity.

Drought Buffer: The cost of the drought buffer program is equal to the District’s cost for carrying the excess allocation annually and relates to the past cost of the SWP infrastructure from Northern California to Devil’s Den - currently approximately $70 – 75 per acre foot.

Exchanges: Costs to consider include those associated with the difference in cost between an existing SWP participant to take additional SWP water versus the supply to be exchanged, and any other costs that participants may require. The exchange beneficiary may also incur costs for modifying their local treatment and/or delivery systems to take the water from the exchanged source of supply.

4.7.8.3 Major Issues Facing Optimization of the use of the State Water Project

The affordability, potential participants/beneficiaries, and mechanism for funding the options for optimizing the State Water System would need to be considered and determined.

Unsubscribed Urban Use: Additional use of SWP water by existing and new urban participants is limited by the capacity of the Coastal Branch of the State Water Project, District policies and contracts between the District, CCWA and/or DWR as described in Section 3.4.1. If there is excess capacity in the Coastal Branch, use of that excess capacity, related changes in treatment plant operations, and associated costs would need to be negotiated between the District, CCWA and DWR in order to modify existing contracts.

Challenges for new urban participants include determining a fair buy-in cost, the affordability of buying in to the SWP and developing adequate infrastructure to take delivery of the water, the process by which new participants are considered under District policies, and the reliability of the SWP. The quantity of water available depends on where along the SWP infrastructure the new participant is located.

Unsubscribed Non-Urban Use: In addition to the challenges for existing and new urban participants, non-urban participants may face challenges due to local agency and/or County policies regarding wheeling water, annexations and use of surface water in rural and agricultural areas. Rural and agricultural water users are largely individualized, which adds to the institutional and financial challenges of implementing a project to deliver SWP to rural and agricultural areas.

Groundwater Banking or Recharge: Challenges to implementing a groundwater banking or recharge project include defining the project participants and beneficiaries, institutional considerations regarding those that would be affected by the project but are unwilling to participate, determining fair costs for all beneficiaries, and, mainly for direct delivery, the ability of the groundwater basin to accept recharge, the environmental impacts of

developing recharge facilities, accountability of the recharged water and water quality compatibility. For a banking project, appropriate design, operation and monitoring would be necessary to ensure extractions of banked water would not have a negative impact on the groundwater basin with respect to without project conditions.

Drought Buffer: In years when the SWP can deliver 100 percent of allocations, the water available as drought buffer may not be put to beneficial use locally, and options for sale of the water on a temporary basis are limited. The water could be "turned back" to the State with only a small percentage of the annual cost of that water reimbursed to the SWP participant. Depending on the percent of allocations the State can provide and the amount of drought buffer SWP participants have, sale of any available drought buffer water at a higher rate, if not sold locally, would likely only be possible under an emergency drought declaration by the State.

Exchanges: In addition to those listed in Unsubscribed Urban/Non-Urban Use above, challenges to implementing an exchange program include the feasibility of connecting to an exchanged supply source if not connected already, water rights issues regarding the place of use of the exchanged supply source, determining the institutional arrangements needed and associated costs, affordability, and stakeholder impacts.

4.7.8.4 Recommendations to Optimize the use of the State Water Project

Since the SWP is a less reliable source of water, looking at a combination of these optimization options to both improve its reliability and increase direct use would be most beneficial. Steps for evaluating and implementing optimization opportunities may include:

- Understanding which entities may be interested in receiving additional State Water (the District has been compiling a list of interested parties)
- Understanding how much additional capacity may be available in the existing infrastructure that conveys State Water (an analysis of the Lopez Pipeline has been completed; an analysis of the Coastal Branch and Chorro Valley Pipeline will be completed in Summer 2011)
- Understanding exchange opportunities with other resources within the District that may free up a portion of the existing State Water allocation
- Developing and/or updating District policies regarding which entities have priority to receive State Water
- Creating a priority list of those who have requested additional State Water based on District policies, infrastructure capabilities and potential exchange opportunities with other resources
- Providing a final opportunity to existing SWP participants to execute Drought Buffer Agreements

- Negotiating use of excess capacity and District allocation with CCWA and DWR guided by District needs and priorities. If District needs are greater than the proportionate share of excess capacity, negotiations with CCWA would likely involve exchanging use of CCWA's proportionate share of capacity for a portion of the District's excess allocation.
- Coordinating with State Water users to further consider the Paso Robles Groundwater Basin (or other Basin in the County) for a banking and/or recharge operation for storage or sale of any unused State Water on an annual basis

4.7.9 Groundwater Banking/Recharge

Groundwater management is the planned and coordinated management of a groundwater basin with a goal of long-term sustainability of the resource. In particular, groundwater management is directed toward improving specific aspects of the management of groundwater resources in individual basins or portions of basins, across the County. The improvements pertain to many aspects of groundwater management, including characterizing and increasing knowledge of individual groundwater basins, identifying basin management strategies or objectives, planning and conducting groundwater studies, and designing and constructing conjunctive management projects.

Groundwater storage can be defined in three different ways depending on the context of its use:

1. The quantity of water that occurs beneath the land surface and fills the pore spaces of alluvium, soil, of rock formations beneath the land surface
2. The volume of usable physical space available to store water in the pore spaces of the alluvium, soil, or rock formation beneath the land surface
3. The act of storing water in the pore spaces of the alluvium, soil, or rock formation beneath the land surface.

These water-filled geologic materials, or aquifers, may receive the water, or be "recharged," from natural hydrologic processes, or the water may be introduced to the aquifers by active groundwater management. The water in these aquifers may be withdrawn through wells, or the water may discharge naturally, contributing to stream flow or to the supply of water for springs, seeps, and wetlands. Maximum attainable groundwater storage capacity is defined as the maximum volume of usable void space that can be occupied by water in a given volume of a formation, aquifer, or groundwater basin.

Groundwater remains an important water source for municipal drinking water, agriculture, and individual water users throughout the County. Groundwater storage is less susceptible to adverse impacts from natural hazards and requires less maintenance compared to surface storage.

Groundwater recharge is the mechanism by which surface water moves from the land surface, through the topsoil subsurface, and into de-watered aquifer space, or through injection of water directly into the aquifers by wells. Groundwater recharge can be either natural or managed. Natural recharge occurs from precipitation falling on the land surface, from water stored in lakes, and from streams carrying storm runoff. Managed recharge occurs when water is placed into constructed recharge or spreading ponds or basins, or when water is injected into the subsurface by wells. Managed recharge is also known as artificial, intentional, or induced recharge. Two widely used methods for managed groundwater recharge are recharge basins and injection wells.

In-lieu recharge is the practice of using alternate source of supply (e.g. imported water) in place of groundwater, thereby leaving groundwater in storage for later use. When supplies are available, groundwater producers would be encouraged to turn off their pumping facilities and use imported water to meet their demands.

Recharge Basins. Recharge basins are frequently used to recharge unconfined aquifers. Water is spread over the surface of a basin or pond in order to increase the quantity of water infiltrating into the ground and then percolating to the water table. Recharge basins concentrate a large volume of infiltrating water on the surface. As a result, groundwater mounds form beneath a basin. As the recharge begins the mound grows; when recharge ceases the mound recedes as the water is spread through the aquifer. The infiltration capacity of recharge basins is initially high, and then as recharge progresses the infiltration rate decreases as a result of surface clogging by fine sediments and biological growth on the uppermost layer of the soil. Fine surface sediments may occasionally need to be removed mechanically to maintain the effectiveness of recharge basins.

Injection Wells. Injection wells are used primarily to recharge confined aquifers. The design of an injection well for artificial recharge is similar to that of a water supply well. The principal difference is that water flows from the injection well into the surrounding aquifer under either a gravity head or a head maintained by an injection pump. As a large amount of water is pushed through a small volume of aquifer near the well face, injection wells are prone to clogging, which is one of the most serious maintenance problems encountered. It is suspected that a combination of a build-up materials brought in by the recharging water are the primary and chemical changes brought about by the recharging water are the primary causes of clogging. Using dual purpose wells (injection and pumping) is one economical way to operate artificial recharge by injection. So that cleaning of the well and the aquifer may be achieved during the pumping period. However, pretreatment of the water to be injected is always necessary to eliminate the suspended matter.

4.7.9.1 Potential Benefits of Groundwater Banking/ Recharge

1. Improved Local Water Supply Reliability. Imported surface storage water supplies and/or flood flows are recharged to a local groundwater basin during wet years/seasons, increasing local water supply reliability.

2. Drought Relief for Urban Water Users and Potential Induced Groundwater Recharge. Groundwater substitution transfer and agricultural water transfer during drought months.
3. Protection from Salt Water Intrusion. Recharge groundwater using captured flood flows or recycled water in the vicinity of salt water interface to raise the groundwater levels and prevent migration of saline water into freshwater production portions of the aquifer.
4. Improved Flood Control and Groundwater Storage. Development of detention/ retention ponds at the proposed residential subdivisions located in the groundwater recharge protection areas can offset the increased urban runoff due to the development while maintaining natural groundwater recharge.

4.7.9.2 Potential Costs of Groundwater Banking/Recharge

Costs for implementing groundwater storage or recharge may include a wide range of facilities and depend on site-specific nature of the program; accordingly, the cost for a unit increase in water supply or delivery is highly variable.

Some projects require relatively minor changes in operations or upgrades of existing infrastructure, such as increased sizing of pumps in existing wells. Other projects may require extensive new facilities such as new pipelines, pumps, injection or extraction wells, or construction of new recharge basins. The highly variable nature of implementation costs requires that feasibility of new projects or programs be evaluated carefully on a case-by-case basis.

The wide range of costs result from many factors including project complexity, regional differences in construction and land costs, availability and quality of recharge supply, availability of infrastructure to capture, convey, recharge and extract water, intended use of water, and treatment requirements.

4.7.9.3 Major Issues Facing Groundwater Banking/ Recharge

Effects of Land Use Changes on Cost and Citing of New or Enlarged Recharge Facilities. A natural recharge area may be eliminated because of a new development or contamination from a development. The protection and the improvement of natural recharge areas are important in maintaining and improving groundwater storage. Proximity of some developments to existing groundwater recharge facilities precludes further expansion of recharge area.

With the cost of land increasing, better land use planning is required to preserve natural recharge areas by either limiting the encroaching development or purchasing the land. However, protecting an important natural recharge area sometimes may not be high priority for the County or local use authorities.

Inconsistency and Uncertainty in Regulatory Status with Respect to Recharge and Surface Commingling of Different Quality Water. Groundwater recharge involves using water from different sources to recharge a groundwater basin. The water quality of water used for recharge is usually different from the water in the receiving groundwater basin. Uncertainty in regulatory status with regard to water quality of recharging and receiving waters increases the uncertainty of the planning effort of the project.

Infrastructure and Operational Costs. Physical capacities of existing storage and conveyance facilities are often not large enough to capture surface water when it is available in wet years. Conveyance capacity for surplus imported water supplies is most available during the wetter and cooler months when water demand is low. However this wetter period also coincides with reduced ability to accomplish in-lieu recharge (due to low water demands) and with increased spreading of local runoff, which may limit the ability to recharge other sources of water.

Water Quality. Groundwater quality can be degraded by naturally occurring or human-introduced chemical constituents, low quality recharge water, or chemical reactions caused by mixing water of different qualities. Protection of human health, the environment, and groundwater quality are all concerns for programs that recharge urban runoff or reclaimed/ recycled water into groundwater.

New and changing understanding of water quality constituents, including emerging contaminants, and their risks to human and ecological health result in changing water quality standards. A water source may, at the time it is used for recharge, meet all drinking water quality standards. Over time, however, detection capabilities improve and new or change water quality standards become applicable. As a result, contaminants that were not previously identified or detected may become future water quality problems creating potential liability.

Recovery of Banked Water. Groundwater banking is generally viewed as being difficult to implement and monitor if overlying land owners are not part of the banking project. Overlying land owners could extract water and benefit from a project that was funded by other parties.

4.7.9.4 Recommendations to Improve Groundwater Banking/ Recharge

1. Basin-wide groundwater management plans should be developed with assistance from an advisory committee of stakeholders to help guide the development, educational outreach, and implementation of the plans. Advanced tools developments should be pursued as part of planning basin wide groundwater management to help quantify the benefit and assess robustness of management strategies.
2. Manage the use of available aquifer space for managed recharge and to develop multi-benefit projects that generate source water for groundwater storage by capturing water not used by other water users or the environment.

3. Identify and evaluate local opportunities to reduce runoff and increase recharge on residential, school, park, and other unpaved areas.

4.7.10 Groundwater Supply Sources

This water supply option is available to all entities that overlay or are near a groundwater basin. Examples include a community in need of a water supply coordinating with a landowner or other agency that overlies a basin with sufficient yield to transfer water; treating groundwater from a basin that is not typically used due to water quality; forming an organization to supply water to a group of homes or agricultural operations; an existing organization extracting more groundwater to meet demands; or individually extracting water from a groundwater basin the property owner overlies.

4.7.10.1 Potential Benefits of using Groundwater Supply Sources

Groundwater is a relatively inexpensive, local supply to meet demands.

4.7.10.2 Potential Cost of Groundwater Supply Sources

Costs of using groundwater supplies include the infrastructure, treatment and ongoing operation and maintenance costs for the system. There may be a fee imposed by the landowner or entity involved with a transfer from the groundwater basin to an outside party. There are institutional costs associated with appropriative rights.

4.7.10.3 Major Issues Facing the use of Groundwater Supply Sources

1. Requires agreements for land and easements to locate utilities.
2. Pumping groundwater from one basin for use in another may require the acquisition of water rights.
3. For groundwater basins that are not typically used due to water quality problems, adding water treatment can be a short or long-term solution to address needs.
4. Conflicts with overlying users and County policies
5. Future use and safe yield

4.7.10.4 Recommendations to Facilitate Management of Groundwater Supply Sources

1. Develop adequate basin monitoring programs in order to understand the safe yield of each basin and monitor its condition over time
2. Develop Groundwater Management Plans for each basin in order to understand their capacity and the effect of certain actions
3. Facilitate education and outreach programs about existing County policies, State programs and water laws regarding groundwater.

4.7.11 Salinas Reservoir Expansion/Exchanges

The Salinas Reservoir and River system could be optimized by modifying the dam to increase the reservoir's safe yield by 1,650 AFY and/or managing releases and flows in the river or its tributaries to make use of high flows that would not otherwise be used or retained in San Luis Obispo County.

4.7.11.1 Potential Benefits of Salinas Reservoir Expansion/Exchanges

This strategy optimizes management of existing supply resource and infrastructure by using Santa Margarita Lake/Salinas Reservoir to its fullest before building new supplies.

For expanding the Reservoir, the rights to do so, currently held by the City of San Luis Obispo, would need to be granted to a regional agency or group in order to implement the project. Examples of this project would be to use the additional safe yield for timed releases to benefit downstream users, deliver directly via wheeling or exchange, or store for emergency use.

Managing releases and flows entails detaining high flows in order to maximize recharge into the groundwater basin and/or make use of flows that would otherwise exit the County.

4.7.11.2 Potential Cost of Salinas Reservoir Expansion/Exchanges

Major costs are for the structural modifications to the dam to meet standards and be able to retain the additional safe yield. There are likely administrative costs associated with maintaining the expansion right and subsequent storage right, contractual coordination and reservoir operations. Infrastructure to detain and utilize flows would be needed. If the additional safe yield was delivered directly, there may be costs associated with delivery infrastructure modifications/additions and/or wheeling charges.

4.7.11.3 Major Issues Facing Salinas Reservoir Expansion/Exchanges

Major structural improvements to the dam would be necessary to install the spillway gates and expand the reservoir which impacts the affordability of the project for its benefit. Also, the rights for expansion, originally with the City of San Luis Obispo, would need to be granted to the regional agency or group representing the expansion project beneficiaries by the State Board. The transfer of ownership of the dam from the Army Corps of Engineers to the District is under consideration, and may also impact the consideration of an expansion project. The legal/institutional ability to detain or extract water from the river during high flows would need to be investigated. Significant environmental impacts associated with expanding the reservoir are also anticipated. Any of the optimization options would require complex negotiations and institutional and financial arrangements related to, among other things, costs and priority of water stored. The affordability, potential participants/beneficiaries, and mechanism for funding the options for the optimizing the Salinas Reservoir would need to be considered and determined.

4.7.11.4 Recommendations to Facilitate Salinas Reservoir Expansion/Exchanges

Due to the cost of the project as compared to the benefit (increase in safe yield) and the water rights issues associated with expanding the reservoir or managing high flows, other options should be considered first for meeting water resources needs. Some investigation into the process and feasibility of implementing the project would be beneficial for determining whether the strategy is actually an option. This may include review of the structural modification requirements, consultation with the State Board, Army Corp of Engineers and City of San Luis Obispo and polling interested participants.

4.7.12 Desalination

Desalination comprises various water treatment processes for the removal of salt from water for beneficial use. Desalination is used to treat seawater as well as brackish water (water with a salinity that exceeds normally acceptable standards for municipal, domestic, and irrigation uses, but less than that of seawater). Desalination technologies are also used to treat polluted and impaired waters and as an advanced treatment of wastewater to produce high quality recycled water. In California, the principle method for desalination is reverse osmosis (RO). This process can be used to remove salt as well as specific contaminants in water such as trihalomethane precursors, volatile organic carbons, nitrates, and pathogens.

Only desalination for municipal purposes, that is, desalination used by public and private water agencies, is considered in the following discussion. Desalination used within an industrial and commercial manufacturing process is not considered since those applications of desalting generally involve treating fresh water to a higher standard than potable water to meet a specific need. For the purposes of this discussion, desalination plant capacity is expressed in terms of the fresh or potable water production capacity of the plant. Total costs are given in dollars per acre-foot of fresh potable water produced.

4.7.12.1.1 *Potential Benefits of Desalination*

In times of water scarcity and an ever-growing demand for fresh water due to population growth, and given current climate trends, water resources will become even more unevenly distributed as water-scarce regions experience more frequent and prolonged droughts. Desalination can be a reliable water supply alternative and a part of the solution for meeting current and future water needs. Conventional water sources are often limited by overdraft, depletion, pollution, and environmental requirements. Furthermore, traditional water supply management methods such as surface water storage, groundwater extraction, and inter-basin water transfer may not be sufficient to meet increasing water demand.

Desalination, when adopted as part of a diversified water supply portfolio, can offer several benefits including:

- Increase in water supply

- Reclamation and beneficial use of impaired waters
- Increased water supply reliability during drought periods
- Decreased need for imported water by developing a local supply source
- Diversification and increased reliability and operational flexibility of water supply sources
- Improved potable water quality
- Protection of public health
- Facilitate more recycling and reuse, given the lower salinity of the source

The primary benefit of desalting is to increase local water supply. Seawater desalting creates a new water supply by tapping the significant supply of feed water from the Pacific Ocean. In addition to seawater desalting, desalination technologies can be used to produce potable water from brackish waters as well as impaired waters. Many surface and groundwater sources are brackish-having high salinity levels-which can be naturally occurring due to the soil type and aquifer lithology or induced by man-made activities such as farming and overdraft of coastal aquifers causing seawater intrusion. Desalination was also proven to treat to very high levels of purity other water that may have low salinity but is impaired by high levels of specific contaminants such as nitrate. Accordingly, desalination in water resources planning is a unique tool serving both the water supply augmentation and water quality improvement strategies.

Desalting groundwater allows groundwater of impaired quality to be adequately treated for potable use. Groundwater desalting may or may not be a new water supply depending upon the water portfolio or balance in the area or region where it occurs. It is however, providing water from a source that is not currently being used for beneficial purposes.

Desalination can serve as an emergency water supply option. Desalination water produced by mobile water desalination units can provide emergency potable water supply for towns and communities during droughts or in response to an abrupt disruption of their water supplies. Mobile water desalination units are water treatment units-generally, Reverse Osmosis mobile desalination units- that can be truck-mounted or air-lifted, enabling the provision of short-term emergency water supply as well as supplemental supply for drought-stricken or disaster areas. These units can provide a flexible solution to water shortages as they can be quickly and easily deployed. Unlike permanent desalination plants, temporary mobile units can be commissioned, installed and put into production in a short period of time. They can also be quickly and easily decommissioned or moved to other locations should emergency or drought conditions ease.

4.7.12.1.2 *Potential Costs of Desalination*

Technological advances in desalination have in the last 20+ years significantly reduced the cost of desalinating water to levels that are comparable, and in some instance competitive,

with other alternatives for acquiring new water supplies. Proposition 50 grant funding cycles in 2005 and in 2006 funded a number of research and development programs directly related to desalting in California. Membrane technologies in the form of reverse osmosis (RO) have the most significant improvement. Continuing improvements in system design, membrane technology and energy efficiency and recovery have helped increase efficiency and reduce costs and energy demand. The RO process has been proven to produce high quality drinking water throughout the world for decades.

The cost of desalination depends on numerous factors that are often project-specific. Feed water characteristics are the greatest determinant of treatment cost. When planning desalination projects, it is important that cost estimates take into account the costs of concentrate management and intake systems, including environmental and permitting costs in addition to process costs (i.e., costs of pre-treatment, post-treatment, and main desalting process). The costs for the City of Morro Bay project were presented earlier in this chapter.

4.7.12.1.3 *Major Issues Facing Desalination*

Desalination has historically been prohibitively expensive. Improvements in technology and the rising cost of conventional water supplies have made desalination competitive with imported water and recycled municipal wastewater in a number of cases. As a result of the improved economics of desalination, other issues have increased in relative importance to cost, namely, environmental impacts and associated permitting (particularly for coastal plants).

Cost and Affordability. The cost will be influenced by the type of feed water, the available concentrate disposal options, the proximity to distribution systems, and the availability and cost of power. The higher costs of desalting may, in some cases, be offset by the benefits of increased water supply reliability and/or the environmental benefits from substituting desalination for a water supply with higher environmental costs. When comparing the cost and impacts of desalination as a water supply option, it is important to compare it to the development of other new water supply options.

Environmental Impact and Permitting. Brackish water desalination plants have fairly routine environmental and permitting requirements with the exception of the problematic issue of concentrate disposal in inland locations. Coastal desalination plants face much greater scrutiny. With a location within the coastal zone, and with the need for water intakes and outfalls, there are many reviewing agencies, organizations and permitting requirements.

Seawater Intakes. A primary concern associated with coastal with coastal desalination plants is the impact of feed water intake on aquatic life. Surface intakes of seawater result in impingement and entrainment of marine organisms. This impact can be avoided by adopting subterranean intakes wherever feasible. Existing seawater intakes for power plant cooling have been approved or are proposed as the source of supply for several of the currently proposed plants. Other projects are currently studying or testing alternative

seawater intake designs. It is worth noting here that the State Board is in the process of developing a statewide water quality control policy based on the Federal Clean Water Act (CWA) Section 316(b) regulations related to the use of coastal and estuarine waters for power plant cooling. However, given that desalination plants co-located with power plants typically draw water off of the system after thermal exchange, the State Water Board's released scoping documents consider that the subject is outside of the scope of CWA section 316(b) and would be more appropriately addressed under existing water quality control plans and policies. A stand-alone desalination facility will be required to apply for an NPDES permit to discharge waste brine.

Carbon Footprint. Given the energy intensity of advanced water treatment processes used to separate salts from water, energy consumption represents a major portion of the direct operation and maintenance expenses of a desalination plant. Energy efficiency will therefore be a key factor in assessing the viability of using desalination as a water supply option in California. Furthermore, efforts to reduce desalination energy use will significantly contribute toward the reduction of greenhouse gas (GHG) emissions from the many proposed desalination projects in California.

The carbon footprint of a desalination plant is mainly a translation of its energy consumption. The associated GHG emissions will be measured by the indirect CO_2 emissions from the electricity used by the plant. In instances where desalinated water is displacing other water supplies currently in use with their own GHG emissions, the net carbon footprint of desalination should be counted as the incremental GHG emissions beyond the current emissions baseline.

The average energy consumption of currently operational RO desalination facilities is estimated at about 1,800 kWh/AF for brackish water and 4,000 kWh/AF for seawater desalination. Using a conservative estimate of GHG emissions of 400 grams of carbon dioxide equivalents (CO_2eq) per kWh, the GHG emissions associated with an RO desalination plant operation are estimated to be 720 kg of CO_2eq/AF of desalinated brackish water and 1,600 kg of CO_2eq/AF of desalinated seawater.

Measures to help reduce the carbon footprint of desalination plants include efficiencies through energy recovery devices, high efficiency pumps, variable frequency drives, low-energy with improved salt rejection membranes, the use of renewable energy sources, and carbon offset plans. A recent demonstration led by the non-profit Affordable Desalination Collaboration showed that by using state-of-the-art energy recovery technology and high efficiency pumps and membranes, the energy required for seawater desalination can be substantially reduced to the range of 2,000-2,500 kWh/AF.

Growth Inducing Impacts. The availability of water has been a substantial limitation on development in a number of locations, primarily coastal communities. Since seawater desalination on the coast is now a more affordable option in comparison to the past the lack of water may no longer be as strong a constraint on coastal development. However, such a

concern is not restricted to desalination and would also be associated with any other new water supply option.

Concentrate Discharge. Desalination plants of any type produce a salt concentrate that must be discharged. The quantity and salinity of that discharge varies with the type of desalting plant and its operation. Brackish water plants in California discharge their concentrate to municipal wastewater treatment systems where they are treated and blended with effluent prior to discharge. For brackish water plants, this type of discharge is likely to continue. Inland desalting plants without a discharge to the ocean may be limited by the type of discharge options available. Seawater desalination produces a concentrate approximately twice as salty as seawater. In addition, residuals of other treatment chemicals may also be in the concentrate. Some plants currently being planned will use existing power plant or wastewater outfall systems to take advantage of dilution and mixing prior to discharge. The availability of power plant cooling systems to dilute the concentrate prior to discharge to the ocean will also be affected by the future of coastal power plants as discussed in the prior section. On the other hand, co-locating concentrate discharge with wastewater effluent outfall might have some environmental benefits to the extent that the concentrate from the desalination plant would increase the salinity of the wastewater effluent levels that are comparable or closer to the of seawater.

Energy Use. Desalination's primary operation cost is for power. A 50 mgd seawater plant would require approximately 33 MW of power. The reduction in unit energy use has been among the most dramatic improvements in recent years due to improvement in energy recovery systems. Additional improvements in energy use are expected.

Generally, the variance in energy requirements of RO desalination is a direct function of the salinity of the feed water source (total dissolved solids). As a result, given similar operating conditions and plant parameters, brackish water desalination is usually less energy intensive, and hence less costly, than seawater desalination.

Even though desalination is energy intensive, other conventional water supply options might in some instances be as energy intensive. At a given point of use, energy intensity of a water supply is the total amount of energy required for its extraction, treatment, and conveyance. Energy required for pumping and transporting water over long distances may be higher than that needed to desalinate local saline waters (e.g. delivering State Water Project). Due to continuing reductions in energy use, the energy needed at the end of the SWP pipe reaches levels that in some instances become comparable to the amount of energy needed to desalinate seawater.

4.7.12.1.4 *Recommendations to Facilitate Desalination*

1. Desalination should be considered, where economically and environmentally appropriate, as an element of a balanced water supply portfolio, which also includes conservation and water recycling to the maximum extent practicable.

2. Where appropriate, desalination must be considered by an integrated regional water management planning region in developing a strategy to meet resource management goals and objectives of the region.
3. Provide technical assistance, when available, to local agencies exploring desalination to help with the implementation of their desalination programs.
4. Provide guidance on permitting requirements to help local agencies pursuing desalination overcome the complex regulatory processes. There is a need for a state clearinghouse to serve as an information source and facilitator for desalination projects, particularly for seawater desalination.
5. Project sponsors should ensure adequate planning to include a collaborative process, which engages key stakeholders and the general public, as well as permitting agencies.

4.7.13 Lopez Lake Expansion/Exchanges

The Lopez Reservoir could be optimized by modifying the dam to increase the reservoir's safe yield or by using the reservoir conjunctively with other supplies for reliability/emergency storage purposes.

4.7.13.1 Potential Benefits of Lopez Reservoir Expansion/Exchanges

This strategy optimizes management of an existing supply resource and infrastructure by using Lopez Reservoir to its fullest before building new supplies.

For expanding the reservoir, examples of this project would be to use the additional safe yield for timed releases to benefit downstream users, deliver directly via wheeling or exchange, or store for emergency use.

Utilizing Lopez Reservoir for reliability/emergency storage purposes involves delivering another supply source when it is available and exceeds demand in lieu of Lopez Reservoir water. Lopez Reservoir water would be retained for use when the water is not available, when there is a drought, to address seawater intrusion or other emergency declaration per Water Code Section 350.

4.7.13.2 Potential Cost of Lopez Reservoir Expansion/Exchanges

Major costs are for the structural modifications to the dam to be able to retain the additional safe yield. There are likely administrative costs associated with obtaining the expansion right and subsequent storage right, contractual coordination and reservoir operations. If the additional safe yield was delivered directly, there may be costs associated with delivery infrastructure modifications/additions and/or wheeling charges. Costs associated with use of the reservoir for reliability/emergency storage purposes include those associated with delivery of the alternative water source and any reimbursement for use of the reservoir and any applicable infrastructure.

4.7.13.3 Major Issues Facing Lopez Reservoir Expansion/Exchanges

Structural improvements to the dam would be necessary to expand the reservoir which impacts the affordability of the project for its benefit. Also, the rights for expansion would need to be granted to the regional agency or group representing the expansion project beneficiaries by the State Board. Significant environmental impacts associated with expanding the reservoir are also anticipated. Any of the optimization options would require complex negotiations and institutional and financial arrangements related to, among other things, costs and priority of water stored. The affordability, potential participants/beneficiaries, and mechanism for funding the options for optimizing the Lopez Reservoir would need to be considered and determined.

4.7.13.4 Recommendations to Facilitate Lopez Reservoir Expansion/Exchanges

An investigation into the process and feasibility of implementing the project, and its cost and benefit, is currently being conducted by Flood Control Zone 3 agencies for determining whether the strategy is actually an option. The District should continue to coordinate with those agencies and other stakeholders on the evaluation of the expansion option with respect to other options.

Use of the reservoir for reliability/emergency storage was anticipated to occur in 2011 by delivering excess State Water in lieu of delivering Lopez Reservoir water and retaining water in the reservoir for use under an emergency declaration per Water Code Section 350 or to address seawater intrusion. Whether the program happens in 2011 or a subsequent year, this experience will would help to evaluate the option for use in the future.

4.7.14 New Off Stream Storage

Many water agencies rely on surface water surface storage as a part of their water systems, and reservoirs also play an important role in flood control and hydropower generation. Similarly, surface storage is often necessary for, or can increase the benefits from other water management strategies such as water transfers, conjunctive management, and conveyance improvement. Some reservoirs contribute to water deliveries across several regions across the state, while others only provide local water deliveries within the same watershed. There are two general categories of surface reservoirs: those formed by building a dam across an active river (on stream) and those called off-stream reservoir storage where the actual reservoir is in a separate geographic location away from the supply source, with water diverted or pumped into storage. This section will cover the second category.

Smaller reservoirs typically store water annually in the winter for use in summer, while larger reservoirs also hold stored water over several years as a reserve for drought or other emergencies.

4.7.14.1 Potential Benefits of Off Stream Surface Storage

Although the allocation of benefits for proposed off-stream surface storage can affect the occurrence and magnitude of different types of benefits, they generally can include:

- Water quality management
- System operational flexibility
- Hydroelectric power generation
- Flood management
- Ecosystem Management
- Sediment transport management
- Emergency water supply

The presence of new offstream surface storage could allow ecosystem and water managers the flexibility to take actions and make real-time decisions that would not be possible without the storage. Water transfers between regions could be easier if water can be released from storage at appropriate times and the receiving regions have reservoirs to store or use the transferred water. Surface storage can improve the effectiveness of conjunctive water management strategies by more effectively capturing supply that can ultimately be stored in or used in lieu of groundwater basins.

With regard to anticipated climate change impacts, new surface storage has the potential to provide greater flexibility for managing supplies to meet varied future water demands. By expanding surface storage capacity, water supply systems will have greater flexibility to use water that would normally go unused. Climate change projections foresee more extreme weather such as floods and droughts. Additional surface storage provides greater flexibility to capture and store floodwaters and hold water in reserve storage for dry years and droughts.

4.7.14.2 Potential Costs of New Off Stream Surface Storage

Costs for off stream storage include the infrastructure and land required for such facilities. Depending on the source of supply, appropriate location for the storage systems, time in storage and subsequent use of the water, there may be treatment requirements.

4.7.14.3 Major Issues Facing New Off Stream Storage

Funding. Construction usually requires a substantial amount of money in a short time. Included in the long-term capital outlay are planning costs such as administrative, engineering, legal, financing, permitting and mitigation, which can also require significant investments.

Impacts. New storage can affect environmental and human conditions and create economic impacts for the surrounding community. New reservoirs may result in the loss of property tax revenue to local governments in the area they are located or in an increase of local property values by firming up the water supply. Mitigation of environmental effects is normally accomplished through implementation strategies that avoid, minimize, rectify or reduce need to address impacts under the application of various laws, regulatory processes and statues.

Suitable Sites. The appropriate site for off-stream storage operations may not be a feasible location due to environmental issues or competing land use options, such as if it is prime agricultural land.

4.7.14.4 Recommendation to Increase Off Stream Surface Storage Benefits

1. Assess whether there are opportunities in the County for off stream storage systems.

4.7.15 Nipomo Supplemental Water Project

The Nipomo supplemental water project consists of waterlines, a pump station and reservoir, flow meter facilities and an interconnect between the City of Santa Maria and Nipomo Community Services District (Nipomo CSD) water systems that is designed to deliver 3,000 AFY. Subsequent distribution of the 3,000 AFY to various agencies in the Nipomo area, either directly or in lieu of Nipomo CSD pumping of groundwater, is shown below:

Nipomo CSD	2,169 AFY
Woodlands Mutual Water Company	415 AFY
Golden State Water Company	208 AFY
Rural Water Company	208 AFY

The project will utilize regional water supplies to slow the depletion of groundwater, reduce the potential for sea water intrusion, be consistent with the settlement agreement and the judgment related to the groundwater adjudication, and increase the reliability of water supply by providing a diversity of water sources.

This Master Water Report assumes the project will be implemented. The portion of the waterline that crosses under the Santa Maria River has a capacity of 6200 AFY, providing a potential for increased deliveries in the future to further benefit the groundwater basin in the Nipomo area.

The possible challenges with utilizing the additional capacity include:

- Negotiations between Nipomo area participants, the City of Santa Maria, Central Coast Water Authority, the District and DWR to determine a source of supply, which would likely include a portion of the District's excess State Water.

4.7.15.1 Potential Benefits of the Nipomo Supplemental Water Project

Putting the additional capacity of the waterline intertie to beneficial use would provide additional supplies to the San Luis Obispo County portion of the Santa Maria Groundwater Basin and offsetting demand on the groundwater basin. This strategy optimizes management of existing supply resources and infrastructure by using the intertie to the fullest extent before building new supplies.

4.7.15.2 Potential Cost of the Nipomo Supplemental Water Project

Costs are associated with procurement of the additional water supply and infrastructure needed to deliver the water. These would likely be a combination of new infrastructure and operation and maintenance costs, and reimbursement for use of existing capacity in the water supply systems.

4.7.15.3 Major Issues Facing the Nipomo Supplemental Water Project

Complex negotiations between Nipomo area participants, the City of Santa Maria, Central Coast Water Authority (CCWA), the District and DWR to determine a source of supply, which would likely include a portion of the District's excess State Water, would be required. Use of State Water as the source of supply would depend on the outcome of a capacity analysis of the Coastal Branch, opportunities for exchanges to free up existing District State Water allocations, priority of use of the State Water allocation based on District policies. The affordability, potential participants/beneficiaries, and mechanism for funding the use of the additional capacity in the intertie would need to be considered and determined.

4.7.15.4 Recommendations to Facilitate the Nipomo Supplemental Water Project

Include the consideration of optimizing the use of the intertie in optimizing the State Water Project as discussed above and continue to coordinate with stakeholders in the Nipomo area and CCWA.

4.7.16 Precipitation Enhancement

Precipitation enhancement, commonly called "cloud seeding," artificially stimulates clouds to produce more rainfall than they would naturally. Cloud seeding injects special substances into the clouds that enable raindrops to form more easily.

Winter orographic cloud seeding has been practiced in California since the early 1950s. Most of the projects are along the central and southern Sierra Nevada with some in the Coast Range. The projects generally use silver iodide as the active seeding agent, supplemented by dry ice if aerial seeding is done. Silver iodide can be applied from ground generators or from airplanes. Occasionally, other agents such as liquid propane are used. In recent years, some projects have been trying hygroscopic materials (substances that take up water from the air) as supplement seeding agents. Most of the projects suspend

operations during the very wet years once enough snow has accumulated to meet their water needs.

In San Luis Obispo County, the District participated in a three year program of cloud seeding with the City of San Luis Obispo during the drought of the early 1990s to benefit the Lopez and Salinas Reservoirs. The contract with the cloud seeding company was for the following amounts each year:

Year	Base Cost	Consumables Cost	Estimated Precipitation Increase	Target Reservoir
1	$66,000	Up to $31,520	12 to 16%, 2 inches	Lopez and Salinas
2	$108,000	Up to $44,440	11 to 14%, 1.5 inches	Lopez and Salinas
3	$30,400	Up to $12,000	13 to 17%, 4 inches	Lopez Only

In the third year, above average rainfall fell, and Salinas Reservoir was full and not included in the program. The 1993 analysis of costs was $13 per AF. Due to limitations of the Lopez Reservoir Dam at the time to go above 60 percent full, and the City of San Luis Obispo no longer pursuing cloud seeding for Salinas Reservoir, the District held off on pursuing the cloud seeding program pending consideration of joint efforts with Santa Barbara County, which was conducting a program that included benefitting Twitchell Reservoir. The District has not participated with Santa Barbara County in this effort. More recently, Monterey County has initiated efforts to potentially implement a cloud seeding program for the Nacimiento and San Antonio Watersheds.

State requirements for sponsors of weather modification projects consist of filing a Notice of Intention (NOI) initially and every five years for continuing projects, some record keeping by operators and annual or biennial reports to the California Department of Water Resources. The items to include in the NOI can be obtained from the DWR. In addition, sponsors need to comply with the California Environmental Quality Act (CEQA). Annual letter notices should also be sent to the board of supervisors of affected counties and to DWR. Activity reports are sent to the National Oceanic and Atmospheric Administration (NOAA) giving the number of days and hours of operation and the amount of seeding material applied.

4.7.16.1 Potential Benefits from Precipitation Enhancement

In California, all precipitation enhancement projects are intended to increase water supply or hydroelectric power. The amount of water produced is difficult to determine, but estimates range from a 2 to 15 percent increase in annual precipitation or runoff. A National Research Council (NRC) 2003 report on weather modification suggested that there is considerable evidence that winter orographic weather modification does work, possibly up to a 10 percent increase. Nearly half of the projects are conducted by utilities, so there is also substantial incremental benefit to hydroelectric power generation.

Cloud seeding has advantages over many other strategies for providing water. A project can be developed and implemented relatively quickly without multiyear lead times. Precipitation enhancement should not be viewed as a remedy for drought. Cloud seeding opportunities are generally fewer in dry years. It works better in combination with surface or groundwater storage to increase average supplies. In the very wet years, when sponsors already have enough water, cloud seeding operations are usually suspended.

4.7.16.2 Potential Cost of Precipitation Enhancement

Costs for cloud seeding are generally less than $20 per AFY. State law says that water gained from cloud seeding is treated the same as natural supply in regard to water rights.

4.7.16.3 Major Issues for Precipitation Enhancement

Operational Precision. It is difficult to accurately target the location and time of cloud seeding. There is an incomplete understanding of the effectiveness of the current targeting practices. Chemical tracer experiments have provided support for some targeting practices. New atmospheric measuring tools can be used in studies of new seeding agents, transport, and diffusion to improve operational precision.

Concern over Potential Impacts. Questions about potential unintended impacts from precipitation enhancement have been raised and addressed over the years. Common concerns related to downwind effects (enhancing precipitation in one area at the expense of those downwind), long-term toxic effects of silver and added snow removal costs in mountain counties. The United States Bureau of Reclamation (USBR) did extensive studies on these issues. The finding is reported in its Project Skywater programmatic environmental statement in 1977 and its Sierra Cooperative Pilot Project environmental impact statement in 1981. The available evidence does not show that seeding clouds with silver iodide causes a decrease in downwind precipitation; in fact, at times some of the increase of target area may extend up to 100 miles downwind.

The potential for eventual toxic effects of silver has not been shown to be a problem. According to the USBR, the small amounts used in cloud seeding do not compare to industry emissions of 100 times as much into the atmosphere in many parts of the country or individual exposure from tooth fillings. Watershed concentrations would be extremely low because only small amounts of seeding agent are used. Accumulations in the soil, vegetation, and surface runoff have not been large enough to measure above the natural background. Sampling at Upper Blue Lake and Salt Springs Reservoir showed very low to nondetectable concentrations in water and sediment. Similar results were found at Lake Almanor in testing water, sediment, and fish samples during the 2000 to 2003 period. Amounts were far below any toxic levels. And there was little to suggest bioaccumulation. Therefore, continued operations should not result in any significant chronic effect on sensitive aquatic regions.

All operating projects have suspension criteria designed to stop cloud seeding any time there is a flood threat.

Inadvertent Weather Modification. There is evidence that human activities such as biomass burning, transportation and agricultural and industrial activities modify local and sometimes regional weather. The effect of aerosols on clouds and precipitation is complex. Recent studies by Ramanathan and Rosenfeld suggest suppressed precipitation formation in affected clouds due to pollution and dust. Some aerosols can enhance precipitation and some, especially the very fine aerosols in diesel smoke, can reduce precipitation processes and the amount of impact as well as possible effects on cloud seeding programs. It is possible that some of the California cloud seeding projects have offset a potential loss in precipitation from air pollution, which may have obscured a more positive signal from the weather modification projects. Research work in Israel has demonstrated such effects.

4.7.16.4 Recommendations to Increase Precipitation Enhancement

1. The County should monitor, as appropriate, research on potential new seeding agents, particularly ones that work at higher temperatures. Climate change may limit the effectiveness of silver iodide, the most commonly used agent, which requires cloud temperatures well below freezing, around -5 C, to be effective.
2. The County should encourage DWR to support the efforts by California weather modification project sponsors, such as that proposed in 2002-03 by Santa Barbara County Water Agency, to obtain federal and state research funds for local research experiments built upon their operating cloud seeding projects.
3. Reconsider cloud seeding in coordination with appropriate agencies given the results of previous efforts and the other water management strategies.

4.7.17 New On Stream Storage

On stream surface storage uses reservoirs to collect water for later release and use. Many California water agencies rely on surface water surface storage as a part of their water systems, and reservoirs also play an important role in flood control and hydropower generation. Similarly, surface storage is often necessary for, or can increase the benefits from other water management strategies such as water transfers, conjunctive management, and conveyance improvement. Some reservoirs contribute to water deliveries across several regions across the state, while others only provide local water deliveries within the same watershed. There are two general categories of surface reservoirs: those formed by building a dam across an active river (on stream) and those called off stream reservoir storage where the actual reservoir is in a separate geographic location away from the source of supply, with water diverted or pumped into storage. This section will cover the first category.

Additional surface storage capacity can also be developed by enlarging, reoperation or modifying existing reservoirs and their outlet structures. Smaller reservoirs typically store water annually in the winter for use in summer, while larger reservoirs also hold stored water over several years as a reserve for drought or other emergencies.

During the past three decades, river habitats and instream flows downstream of many existing reservoirs have gradually received improved water benefits due to changes in reservoir releases resulting from new regulations and legislation. Specifically, the management of many existing reservoirs has been improved to achieve ecosystem and river recreation benefits beyond the original water supply needs. However, as the water demands for agricultural, urban, and environmental needs have grown, the operational flexibility of the surface water system has become more limited.

4.7.17.1 Potential Benefits of On Stream Surface Storage

Many reservoirs were originally built for the primary purposes of hydropower, flood control, and consumptive water use. Although the allocation of benefits for proposed surface storage can affect the occurrence and magnitude of different types of benefits, they generally can include:

- Water quality management
- System operational flexibility
- Hydroelectric power generation
- Flood management
- Ecosystem Management
- Sediment transport management
- River and lake Recreation
- Emergency water supply

The presence of new on stream surface storage could allow ecosystem and water managers the flexibility to take actions and make real-time decisions that would not be possible without the storage. Water transfers between regions could be easier if water can be released from upstream storage appropriate times and the receiving regions have reservoirs to store the transferred water. Surface storage can improve the effectiveness of conjunctive water management strategies by more effectively capturing runoff that can ultimately be stored in groundwater basins.

With regard to anticipated climate change impacts, new surface storage has the potential to provide greater flexibility for capturing surface water runoff and managing supplies to meet varied future water demands. By expanding surface storage capacity, water supply systems will have greater flexibility to capture more winter runoff and control larger floods. Climate change projections foresee more extreme weather such as floods and droughts. Additional

surface storage provides greater flexibility to capture and store floodwaters and hold water in reserve storage for dry years and droughts.

4.7.17.2 Potential Costs of New On Stream Surface Storage

Cost estimates for potential surface storage alternatives are not specified in this narrative because they vary extensively by region and specific project design. In most cases, the costs of multipurpose storage projects are shared by many beneficiaries, and often include State or federal cost-share component. The magnitude of individual project benefits and corresponding costs for new water supply, hydropower, water quality, and flood management can be expected to vary significantly from project to project, so that average cost information is not accurate.

4.7.17.3 Major Issues Facing New On Stream Storage

Funding. Construction usually requires a substantial amount of money in a short time. Included in the long-term capital outlay are planning costs such as administrative, engineering, legal, financing, permitting and mitigation, which can also require significant investments. Some new storage options, such as raising existing reservoirs, reoperating them, or constructing small local reservoirs, may require significantly less capital, but may require local funding through revenue or general obligation bonds. Even these less costly projects could face financial challenges.

Impacts. New storage can affect environmental and human conditions and create economic impacts for the surrounding community and flow impacts both up and downstream of diversions. New reservoirs may result in the loss of property tax revenue to local governments in the area they are located or in an increase of local property values by firming up the water supply. Regulatory and permitting requirements require surface storage investigations to consider potential impacts to the stream flow regimes, potential changes in stream geomorphology, loss of fish and wildlife habitat, and risk of failure during seismic and operational events. Existing environmental laws require that these types of effects be mitigated. Mitigation of environmental effects is normally accomplished through implementation strategies that avoid, minimize, rectify or reduce need to address impacts under the application of various laws, regulatory processes and statues such as Public Trust Doctrine, State dam safety standards, Area of Origin statues, California Environmental Quality Act, National Environmental Protection Act, the Clean Water Act, and the Endangered Species Act.

Suitable Sites. Most of the best natural reservoir sites in the County have already been developed and environmental and regulations and mitigation requirements impose significant constraints to development of new surface storage in the County. Sites that were identified but never developed include: Lower Jack Creek (gross storage of 15,000 to 28,000 acre feet), Santa Rita Creek (gross storage of 10,000 to 23,500 acre-feet). Several alternative reservoir sites were conceptually identified with an estimated gross storage of 7,000 to 12,200 acre-feet at Santa Rosa Creek, Lower San Simeon Creek, and Upper

Steiner Creek. The range of surface storage development operations is generally more limited for smaller local and regional agencies than for the state and federal government, because the limited agency funding and staff resources impact their capabilities to complete complex feasibility studies, design documents, environmental impact studies, and related project planning needs. These circumstances severely constrain the ability of local governments and agencies to finance and implement the projects necessary to sustain the local economy, preserve or restore riparian habitats and provide water supplies for regional population growth.

4.7.17.4 Recommendation to Increase On Stream Surface Storage Benefits

1. Reservoir operators and stakeholders should continue to adaptively manage operations of existing facilities in response to increased understanding of system complexities and demands as well as changes in natural and human considerations such as social values, hydrology, and climate change.

3. Water resources scientists, engineers, engineers, and planners, should recognize the potential long development time required for new surface storage in securing funding needed for continuity of planning, environmental studies, permitting, design, construction, and operation and maintenance.

4. Rehabilitation and possible enlargement of existing older dams and infrastructure should be given full consideration as an alternative to new storage.

5. As an alternative to new storage, agencies should consider the potential to develop water purchasing agreements to buy water from other agencies that own storage reservoirs with substantial water supplies.

4.8 SUMMARY ANALYSIS, CONCLUSIONS, RECOMMENDATIONS

This section presents a summary of the analysis and recommendations for improving water supply to meet existing and future demands throughout the County. The first few sub-sections below explore some of the regional recommendations that could be implemented County-wide to improve supply reliability and to improve the information contained in future master water reports. Following the regional recommendation discussion, there is a summary of the water demand and supply analysis by water planning area (WPA) for the three sub-regions. The WPA analysis presents support for implementing different water management strategies to meet existing and forecast demands, and to improve supply reliability.

4.8.1 Contingency Plan or Reliability Supply

It is suggested that each community in the County consider developing a contingency plan or reliability supply, if they have not already done so. The contingency plan or reliability supply can either be a dramatic reduction in demand to off-set the loss of a supply or an

additional supply above the build-out demand. Below are two discussions of contingency or reliability supply plans that could be implemented to maintain adequate services to residents in a community. The first discussion summarizes the successful water supply portfolio and general plan policies adopted by the City of San Luis Obispo to manage its supply sources. The second discussion is a general approach to achieve a reliability supply plan through a combination of emergency conservation and new supplies. Both of these discussions are simply examples that could be followed by water purveyors, but not all purveyors will have the ability to implement such programs.

An additional benefit with implementing a contingency or reliability supply plan is the ability to address the uncertainties with climate change and the potential impacts to water supply. As climate change and the potential effects on local and imported supplies are better understood, the contingency supply plans can be adjusted to improve the water supply management strategies. Without a reliability supply plan, a community may be unable to respond to extended periods of below average water supply resulting from climate change.

4.8.1.1 City of San Luis Obispo Reliability Reserve

The City of San Luis Obispo possesses sufficient available water supply to meet its primary water supply needs, and maintains a reliability reserve and secondary water supply. The following is an excerpt from Chapter 8 of the City of San Luis Obispo's General Plan (Revised July 6, 2010).

In 1991, during an extended drought, the community was within 18 months of running out of water in Salinas and Whale Rock Reservoirs. In fact, Salinas Reservoir was below minimum pool and was not available to the City of San Luis Obispo toward the end of this drought period. In 1996, citizens voted to incorporate Section 909 into the City's Charter identifying a water reliability reserve. In an effort to reduce the impacts of drought on the community, the City Council has enacted numerous water policies to strengthen its water resources portfolio.

The City will account for water supplies necessary to meet three specific community needs: 1) primary water supply; 2) reliability reserve; and 3) secondary water supply.

1) Primary water supply is the amount needed to meet the General Plan build-out of the City. The quantity of water needed for the City's primary water supply needs is calculated using a ten-year average of actual per-capita water use and the City's build-out population.

2) Reliability reserve provides a buffer for future unforeseen or unpredictable long-term impacts to the City's available water resources such as loss of yield from an existing water supply source and impacts due to climate change.

3) Secondary water supply is the amount needed to meet peak water demand periods or short-term loss of City water supply sources. The City's secondary water supply is

identified as any water supply resources above those needed to meet the primary water supply and reliability reserve.

The City's historical per capita usage water use has ranged from a high of 182 gallons per capita per day (gpcd) in 1987 to a low of 86 gpcd in 1991 (during mandatory water rationing). To project the City's primary water supply and reliability reserve into the future, an average per capita water use rate will be used, moderated by the use of the ten-year running average to normalize weather events. In 2010, the ten-year average is 123.2 gpcd. This water use rate is used with the City's build-out population and current population to project the primary water supply and reliability reserve. The City's remaining water resources make up secondary water supply, as shown in Table 4.53. The City has successfully managed its water supply resources to provide adequate service for its citizens during times of drought, and also maintain a reliability reserve to address unforeseen loss of yield from an existing supply, and preserve a secondary supply in case of short-term loss of a supply.

Table 4.53 City of San Luis Obispo 2010 Water Supply Accounting

Total Supply Availability, (AF)[1]	Primary Water Supply, (AF)[2]	Reliability Reserve (AF)[3]	Secondary Water Supply, (AF)[4]
9,950	7,894	1,241	816

Notes:
1. The "Total" water supply for 2010 is identified in Table 1, Chapter 8 of the City's General Plan. It includes safe annual yield from Salinas and Whale Rock Reservoirs, contractual limit from Nacimiento Reservoir, annual recycled water usage for 2009, and deducts siltation losses at Salinas and Whale Rock Reservoirs to 2060.
2. *Primary Water Supply* was calculated using the City's buildout population (57,200, per Land Use Element, General Plan Table 2, Anticipated City Population Growth, 2006) and the water use rate of 123.2 gallons per capita per day (a ten-year running average of the City's actual per capita water use), per policy A 5.2.2.
3. *Reliability Reserve* was calculated using the City's 2010 population (44,948, per CA Dept. of Finance, E-4 Population Estimates for Cities, Counties and the State, 2001-2010, with 2000 Benchmark. Sacramento, CA, May 2010) and 20 percent of the water use rate of 123.2 gallons per capita per day (a ten-year running average of the City's actual per capita water use), per policy A 5.2.3.
4. Secondary Water Supply includes the remaining water resources available in 2010, identified in Table 1, per policy A 5.2.4.

Source: City of San Luis Obispo Utilities Department, 2010.

In 1988, the City contracted with the engineering firm of Leedshill-Herkenhoff, Inc., to prepare a detailed analysis of the City's water supplies and create a computer model to estimate safe annual yield, based on coordinated operation of the Salinas and Whale Rock Reservoirs. In 1991, staff updated the computer model to examine the impact of the 1986-1991 drought on safe annual yield and revise the assumptions on the amount of water used from Whale Rock Reservoir each year to more accurately reflect the way the City actually used that resource. The analysis determined that the 1986-91 drought was the critical

drought of record for the two reservoirs. These revised assumptions resulted in a reduction in the safe annual yield estimate. The City's safe annual yield for 2010, from the coordinated operation of Salinas and Whale Rock Reservoirs is 6,940 acre feet. This includes reductions due to siltation at both reservoirs to the year 2010. The Nacimiento Water Project (3,380 AF), Recycled Water (130 AF), and reductions due to siltation (less 500 AF), along with the two reservoirs provide the 2010 Supply Availability of 9,950 AF presented in the table above.

4.8.1.2 Reliability Supply Goal

The City of San Luis Obispo's Reliability Reserve and Secondary Supply (combined) are equivalent to about 26 percent of the build-out demand or 20 percent of the 2010 water resource availability. It is suggested that all municipal agencies in the County consider developing an additional 15 to 20 percent supply (above the build-out demand) as a reliability reserve, similar to the City of San Luis Obispo, or develop a contingency plan that would provide the ability to manage future unforeseen or unpredictable long-term impacts to water resources. Different factors determine how much reliability is needed by an agency and each agency has the authority to implement this suggestion since it is not a requirement. This study did not evaluate or conclude how much reliability is needed for each agency.

Determining how much reliability reserve is necessary could depend on how much supply is at risk during an emergency. Since the supplies within the County vary from imported surface water, local surface water, groundwater, desalination, recycled water, and river extraction, determining how much supply is at risk varies for each agency and depends on the type of emergency. Agencies should evaluate the supply side risk (which resources could be lost in an emergency or drought) and demand side risk (which uses would be reduced or eliminated) to determine the necessary reliability reserve.

The next step is to determine how an agency would react to the emergency or drought. If agencies decide not to increase supplies similar to San Luis Obispo, then the other option could be to control demand and implement drastic emergency conservation measures to offset an unforeseen loss of a water resource. If a community could reduce its demands sufficiently to avoid the development of a reliability reserve supply, then drastic conservation becomes the emergency plan. Emergency conservation may not be sufficient by itself to make up for the loss of supply, but it would reduce the reliability reserve that an agency would need to implement. In this case, a mixture of severe conservation and the development of a reliability reserve supply would be necessary.

4.8.2 Regional Water Supply Strategies

The District, in coordination with appropriate entities, will lead the effort to optimize the use of unsubscribed State Project Water (SWP) or Nacimiento Project Water (NWP) to promote enhanced use of existing available resources that support local agency use and exchanges.

4.8.2.1 Interagency Arrangements and Exchanges

There are opportunities to move water within the County and to match demands with available sources at different times. An example of this is using the City of Morro Bay's newly installed brackish water reverse osmosis system. During certain months of the year, Morro Bay does not use any State Water. During these months, other agencies could take advantage of Morro Bay's allocation, provided the recipient of Morro Bay's State Water would be willing to return their allocation later in the year.

Other exchange opportunities (as previously described above) entail using unsubscribed water in exchange for a currently used water resource. Examples include:

- Connecting CMC or Cal Poly to the NWP and freeing up State Water and/or Whale Rock Reservoir water for use by others;
- The City of San Luis Obispo utilizing additional water from the NWP and freeing up Salinas Reservoir water for use by others;
- Delivering unsubscribed water to urban areas to free up groundwater for rural and/or agricultural users;
- Increasing SWP deliveries to CMC and freeing up Whale Rock Reservoir water for use by others; or
- Lopez Turn-out participants utilizing additional water from the SWP and freeing up Lopez Reservoir water for use by others.

Exchanges would allow those entities with water supply needs that would not feasibly be able to connect directly to the NWP or SWP to receive a supply from a source to which they are already connected, or whose connection would be more feasible. Such an exchange promotes use of existing water supply systems before developing new supplies. Below are examples of interagency arrangements and exchanges that could be implemented to optimize the County's overall water supply.

4.8.2.2 Chorro Valley Water System Connection to NWP

Connecting the Chorro Valley Water System to the Nacimiento Water Project could allow for more State Water and/or Whale Rock Reservoir delivery to North and South County areas. The majority of the infrastructure is built, but some improvements would be necessary to connect the Chorro Valley Water System to the NWP.

4.8.2.3 Santa Margarita Lake/Salinas Reservoir Release

The Santa Margarita Lake/Salinas Reservoir (Salinas Reservoir) fills quickly, and spills every two years (personal communication with City of San Luis Obispo staff). Therefore, the Salinas Reservoir presents an exchange opportunity to release water from the reservoir

that could be used to recharge the Paso Robles groundwater basin. In return, the City of San Luis Obispo would receive a certain amount of Nacimiento Project Water based on the Salinas Reservoir releases.

4.8.3 Water Conservation

A detailed discussion on the benefits, costs, and issues facing agricultural and urban conservation programs was presented earlier in this chapter. Water conservation programs are being implemented throughout the County. Most purveyors established water conservation programs during a prolonged drought in the early 90s. Purveyors should continue promoting conservation measures to their customers and teach conservation as a way of life in the County. All County purveyors should be members of the Partner in Water Conservation. Currently there are only 12 members in the County.

County departments should coordinate with appropriate entities to promote the use of conservation measures by rural and agricultural users. Since most rural and agricultural users do not receive water from a regional water wholesaler, the County is the logical entity to lead in implementing new programs to assist these users with reducing water use. The County should raise awareness and gain involvement of key groups and individuals throughout the County who could assist with this challenge. One group that is leading the effort to understand agricultural irrigation within the Paso Robles Groundwater Basin is the Paso Robles Wine Country Alliance (PRWCA) and another group that is leading the effort to improve agricultural irrigation efficiencies is the Central Coast Vineyard Team (CCVT). The CCVT, working with resource conservation districts (RCDs), can improve irrigation efficiencies via on-farm audits, education programs and mobile laboratory irrigation testing. Refer to Chapter 2 “Resource Agencies” for a discussion on other groups with whom to coordinate. Working with these groups would assist the County in:

- Increasing communication with the agricultural and rural community
- Increasing knowledge of supply limitations and findings of this study
- Establishing conservation goals for different groundwater basins throughout the County

4.8.4 Groundwater Evaluations

The perennial yield or safe basin yield of groundwater basins should be determined for those basins without an adequate or current estimate. If this value is determined, then each groundwater basin within the County would have an estimate of the rate at which water could be pumped from wells year after year without decreasing the groundwater in storage. The perennial yield could also be tied to the rate of replenishment or recharge to the basin that will not result in diminished storage (Perennial yield definition excerpt from the Revised Resource Capacity Study, Water Supply in the Paso Robles Groundwater Basin, October 2010).

Groundwater models are possible tools that could assist in the management of recharge and extraction to preserve supply resources. Once developed, these tools could be used to determine the perennial yield.

These basin management efforts are best implemented by forming basin stakeholder groups and developing a Groundwater Management Plan. Ideally, a participating agency would lead this effort and submit applications for groundwater management assistance grant programs.

4.8.5 Groundwater Banking/Recharge

In general, groundwater banking/recharge is not perceived as a long-term management strategy for use of unallocated supplies. The opportunity for banking supplemental water decreases as new subscribers are added to surface water supplies, such as the Nacimiento Water Project (NWP) or the State Water Project (SWP). Current contractors of NWP or SWP should consider maximizing their allotted use, which will reduce groundwater pumping. Once unallocated supplies are allocated, those participating agencies could then consider banking/recharge programs to improve the reliability and use of those supplies.

Groundwater banking is generally viewed as being difficult to implement and monitor if overlying land owners are not part of the banking project. Overlying land owners could extract water and benefit from a project that was funded by other parties. Or the operations of the banking project, if not designed and operated properly, could negatively affect neighboring overlying users. The costs to implement a water banking project are also very high when compared to the benefit.

4.8.6 Streamline Institutional Agreements

The cities and agencies within the County desire a simplified approach to transfer water between each other. A request was made that the District lead the development of a “boiler plate” agreement, or streamlined, standard process, which could then be used by local agencies to implement a transfer agreement. A similar agreement or process could also be developed for emergency intertie agreements. An example of how the process could be streamlined is by developing a memorandum of understanding (MOU) to establish the method for determining the equitable costs for a temporary transfer or emergency intertie.

4.8.7 Improving Agriculture Demand Estimate

The agriculture demand assessment was based in large part on the County Agriculture Commissioner’s Agricultural/Crop ArcGIS layer from August 2008. This information was used to determine existing agricultural acreage by crop group. This layer is updated each year with information from the pesticide use records obtained by the San Luis Obispo Department of Agriculture. According to the Agriculture Commissioner’s staff, the pesticide

use permits provide the most accurate information available regarding the location of planned commercial agricultural production during the year, but do not identify whether the specific crop was planted, whether irrigation was applied, the number of crop rotations for annual crops, and other factors critical to an accurate accounting of irrigated cropland (Isensee, 2009).

Future planning efforts need to include agricultural demands not captured in the Agriculture Commissioner's pesticide use reports GIS database. For example, irrigated pastures not intended for commercial sale but for private use are not included in the County's database, but are likely a large demand on the local groundwater supplies. An example is Water Planning Area 1 (San Simeon) where the calculated agricultural demand is fairly small, but there is a large irrigated pasture component that is not currently in the demand for WPA 1. The actual agricultural demand is likely greater than the calculated demand presented in this report. This report also does not account for livestock water use, which in some basins, could be a significant user. However, it would be difficult to accurately assess livestock water demand.

Future planning efforts should either develop more accurate agricultural demand estimates or complete a separate study that focuses solely on agricultural demands, and then incorporate the findings into future master water reports. Ideally, stakeholder groups established in each Water Planning Area would coordinate to refine these (and other) estimates on a watershed and groundwater basin basis for their area to better reflect whether there is enough supply to meet demand, as discussed in the next section. One example of a group that is leading the effort to understand agricultural irrigation within the Paso Robles Groundwater Basin is the UC Davis Cooperative Extension, with the support of the Paso Robles Wine Country Alliance and participating growers. Refer to Chapter 2 "Resource Agencies" for a discussion on other groups with whom to coordinate.

4.8.8 Improving Rural Demand Estimate

Similar to the agricultural demand estimate, the method for calculating the rural demand estimate should be improved. More accuracy in the rural demand estimate is achievable, provided water use information from rural customers is available. As part of the recommendations in the Resource Management System 2009 Annual Summary Report provided by the WRAC, the County Board of Supervisors adopted a set of actions that should result in more rural water use information being made available for future master water reports.

The adopted actions include, but are not limited to the installation of flow meters on non-agricultural wells, monthly water use recording and semi-annual reporting for water purveyors with as few as five connections, and the inclusion of some wells into the District's water well level monitoring program. The implementation of these requirements will result in actual water use data being used to develop better rural water demand projections.

4.8.9 Agricultural and Rural Users Water Management Strategies

County-wide, rural water demands represent less than five percent of the total urban, agriculture and rural demands. The range varies from a low of less than one percent (Los Osos WPA 5) to a high of 21 percent (Carrizo Plain WPA 10). Agricultural water demand represents about 80 percent of the total County demand (excluding environmental). The range varies from a low of 30 percent (San Luis Obispo/Avila WPA 6) to a high of nearly 100 percent (Huasna Valley WPA 8).

One challenge with developing water management strategies for rural and agricultural users is the lack of understanding between the demand location and the supply source. For example, for the Paso Robles Groundwater Basin, the District has a good understanding of where rural and agriculture demands are compared to the groundwater basin supply. Therefore, the Paso Robles Groundwater Basin study was able to develop a water demand and supply balance for the users within the basin. This is not the case for all basins within the County. A water balance evaluation should be conducted on a watershed and groundwater basin basis within the County to better understand the relationship between supply and demand within a water planning area's boundary. This Master Water Report evaluated demands on a water planning area level, but was not able to conclude whether or not rural or agricultural supplies are adequate to meet demands (i.e. "uncertain", as discussed below). Future studies should be focused on the watershed and basin level to arrive at the water balance. An alternative would be the preparation of a "stakeholder driven" watershed/groundwater basin management plan, such as the Groundwater Management Plan and Steering Committee formed for the Paso Robles Groundwater Basin Management, that could be used in future master water reports.

Another challenge with developing water management strategies for rural and agricultural users is the uncertainty of whether and how much groundwater is being extracted from defined basins (discussed in Section 3.3), versus how much groundwater is being supplied by wells that tap fractured rock aquifers or other non-basin sources. For example, the agricultural areas located west of the cities of Paso Robles and Templeton along Highway 46 West are outside the Paso Robles Groundwater Basin and Atascadero Groundwater Sub-basin. However, sufficient groundwater appears to exist to supply commercial agricultural operations currently, but it is unknown whether the groundwater can sustain operations into the future. Groundwater resources in some areas outside defined basins have been studied on a multiple-parcel basis for specific planning issues or for small public water systems, but in most cases hydrogeologic data is only generated when a new well is drilled or a property is sold. Generally, available information is limited to specific wells; formation-wide data related to aquifer yield, water quality, or water availability is not available.

Although the agricultural and rural water demands were quantified on a water planning area basis, there is too much uncertainty in the demand and the exact source of supply to arrive at a reasonable conclusion on whether an existing and/or future water supply exists for most water planning areas. In general, if there is a need for additional supply to meet rural and agricultural demands, the following water management strategies should be considered.

- Conservation
- Land use management (including low impact development and rainwater harvesting)
- Groundwater supply sources, including undefined fractured rock aquifers
- Off stream storage, including stock ponds
- Recycled water estimate. Recycled water presents a viable opportunity for direct delivery of irrigation water or for groundwater recharge/banking. Potential wastewater treatment plants being upgraded or constructed to provide tertiary treatment for recycled water include the City of Morro Bay and the community of Los Osos. The City of San Luis Obispo's existing water reclamation facility could be expanded to increase recycled water delivery. Other treatment plants that could be upgraded to produce recycled water and are located near large agricultural operations include the City of Paso Robles and the South San Luis Obispo County Sanitation District.
- Groundwater banking/recharge using recycled water, NWP or SWP supplies
- Desalination of brackish groundwater for areas like the Carrizo Plain

4.8.10 Environmental Water Management Strategy

Environmental water demand refers to the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. For this study, Environmental Water Demand is most commonly described and quantified in terms of instream flow requirements, i.e., the amount of water that must remain in the creek or river to support the various life stages of the target or indicator species. For the purposes of this analysis, the federally threatened south-central California coast steelhead (*Oncorhynchus mykiss*) was used as the primary indicator species.

Planning-level assessments such as this one do not take the complexity of natural systems into consideration. While the results provide a reasonable and scientifically supported estimate of the Environmental Water Demand for the purposes of water planning, site- and project-specific instream flow requirements need to be completed to be able to determine a water balance that accounted for environmental water demand on a water planning area basis in future master water reports. This would allow the environmental water demand to be quantified and represented on a sub-watershed or creek basis. The first steps in this effort are establishing appropriate data collection sites, identifying opportunities for coordination with appropriate entities on the effort, and prioritize these locations.

4.8.11 Unsubscribed State Water Project

The District is currently studying the hydraulic capacity of the State Water Project Coastal Branch to determine if sufficient capacity exists to transmit additional State Water to coastal communities. This effort is to identify the potential for the delivery of additional unsubscribed State Water. Use of unsubscribed SWP in the above exchange scenarios will also be considered in evaluating and negotiating the use of any extra capacity in the Coastal Branch.

4.8.12 North Coast Sub-Region

The discussion and analysis below presents the existing and forecast water demands and supplies, an evaluation of the water supply versus demand balance, identification of water management strategies and the potential for implementing a management strategy for each WPA. Note that the suggested water management strategies are not requirements, and most are consistent with existing water planning studies and options being considered by cities, communities and agencies.

As shown in the tables below, the water management strategies were assigned a Greater or Moderate designation to express their potential for implementation. These designations were presented to the WRAC and individual agencies for input on their validity. If a water management strategy had minimal potential for implementation or was not applicable, then a designation was not assigned. Below are the designation definitions used to evaluate the water management strategies and their ability to address the water supply need.

- Greater: Likely feasible and will address all or a major portion of the deficiency
- Moderate: Project may be feasible and may provide some level of supply to address the deficiency

4.8.12.1 San Simeon WPA 1

Groundwater is the primary water supply source for this WPA. The primary constraints on water availability in the basins in this WPA include physical limitations and potential water quality issues. Currently the Pico Creek Valley Groundwater Basin water supply of San Simeon CSD is at a certified Level III severity rating (resource capacity has been met or exceeded) due to the unreliability of the groundwater supply to meet existing demands (SLO County, 2008). As a result, a moratorium on development in San Simeon has been in place since 1991.

Groundwater levels for the groundwater basins in this WPA are likely highest during the wet season. They steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. During drought periods, creek flows are likely insufficient to adequately recharge the basins and groundwater levels could subsequently be lowered significantly due to pumping. Significant lowering of basin groundwater levels at or below sea level near the coast could lead to seawater intrusion and degradation of water quality.

4.8.12.1.1 *Water Management Strategies*

San Simeon CSD serves the primary population center and is the largest urban water user in this WPA. Seventy percent of water used by the San Simeon CSD is for commercial use (tourist/hotels). Due to the supply limitations of the Pico Creek Valley Groundwater Basin, an alternative supply is necessary to meet future demands. Water conservation measures have been fully implemented and there is minimal or no opportunity to further reduce water demands. As discussed above, further mandatory or emergency conservation would be used to off-set an emergency or reliability supply, not to support growth. Three water management strategies are likely the most feasible options to consider for San Simeon CSD's future water supply:

- Recycled water
- Groundwater supply sources (other than Pico Creek Valley Groundwater Basin)
- Desalination

San Simeon CSD plans to move forward with upgrading its wastewater treatment facility to use the treated effluent as recycled water for landscape irrigation and possibly commercial uses (not for seawater intrusion barrier). By July 2012, the facility will be producing Title 22 recycled water, but it will only be available to commercial trucks that connect to an on-site tank. The long-term plan is to construct a recycled water distribution system.

The Arroyo De La Cruz Groundwater Basin is a possible option for a future water supply. Unfortunately, published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. The safe basin yield should be determined as part of any investigation of this basin as a future water supply. This supply would likely serve as the best option for the future Hearst Ranch Hotel and Old Town San Simeon. Coordination with Hearst Ranch for delivering groundwater from this basin to San Simeon CSD would be required.

San Simeon CSD could also implement a desalination project (similar to one being considered by Cambria CSD). The implementation challenges would be similar to those experienced by Cambria CSD, which is the reason for this water management strategy receiving a moderate designation for implementation potential.

On stream storage has been proposed and evaluated in the past, and is not a likely option.

Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and groundwater banking/recharge (using recycled water).

Although the urban water demand is greater than the combined calculated agricultural and rural demands, the calculations do not account for livestock operations, and likely underestimates the actual agricultural demand. For example, Hearst Holdings Inc. makes up the majority of agriculture/rural land ownership in this WPA and has submitted surface water diversion reporting forms to the State Board estimating 1,829 AFY has been used for irrigation, for livestock and domestic purposes on their property. As discussed above in the Agricultural and Rural Water Management Strategies section, due to the uncertainty in determining the exact source of supply compared to the demand, it is difficult to determine whether a supply deficiency exists. Future master water reports should more accurately calculate agricultural demand and complete a water balance to gain a better understanding of potential supply deficiencies for non-urban water users.

If it is determined that a supply deficit exists, then rural and agricultural users are encouraged to implement conservation measures to reduce demands and/or extract water from other groundwater supplies. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and off stream storage.

Table 4.54 San Simeon WPA 1 Water Management Strategies				
	San Simeon CSD	**Agriculture**	**Rural**	**Environmental**
Demand				
Existing Demand (AFY)	108[1]	70[2]	20[2]	
Forecast Demand (AFY)	250[3][4]	10 - 60[2]	50[2]	
Supply				
Pico Creek Valley Basin (AFY)[5]	140	[6]	[6]	
San Carpoforo Valley Basin (AFY)[7]	0	Uncertain	Uncertain	
Arroyo De La Cruz Valley Basin (AFY)	0	[8][9]	[9]	
Other Groundwater Supply Sources (AFY)	Uncertain	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	[10]	[10]	
Total Supply (AFY)	**140**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)[16]				72,980
Unimpaired Mean Annual Discharge(AFY)[17]				104,490
Water Supply Versus Demand Balance	**Future Deficit**	**Uncertain[11]**	**Uncertain[11]**	**Uncertain[18]**
Water Management Strategies and Potential for Implementation				
Further Conservation	Fully Implemented[12]	**Greater**	**Greater**	

Table 4.54 San Simeon WPA 1 Water Management Strategies

	San Simeon CSD	Agriculture	Rural	Environmental
Unsubscribed Nacimiento Water Project[13]				
Land Use Management[19]	Moderate	Moderate	Moderate	
Recycled Water	**Greater**			
Optimize Use of State Water Project				
Groundwater Banking/Recharge	Moderate[14]			
Groundwater Supply Sources	**Greater**	**Greater**	**Greater**	
Salinas Reservoir Expansion/Exchange				
Desalination	Moderate			
Lopez Lake Expansion/Exchange				
New Off Stream Storage		Moderate		
Nipomo Supplemental Water Project				
Precipitation Enhancement				
New On Stream Storage[15]				

Notes:
1. Demands fluctuate between 70 and 140 AFY due to changes in tourism.
2. Agricultural and rural demand calculations do not account for livestock operations, and likely underestimates actual water demands. For example, Hearst Holdings Inc. makes up the majority of agriculture/rural land ownership in this WPA and has submitted surface water diversion reporting forms to the SWRCB estimating 1,829 AFY of irrigation, livestock and domestic usage for their property from surface sources.
3. Extensive conservation program in place. No further conservation expected at build-out by San Simeon CSD.

pw://Carollo/Documents/Client/CA/SLOCFCWCD/8257A00/Deliverables/MWR 04

Table 4.54 San Simeon WPA 1 Water Management Strategies				
	San Simeon CSD	**Agriculture**	**Rural**	**Environmental**

4. Most recent master plan forecast a build-out demand of 224 AFY, but San Simeon CSD's current build-out demand estimate is 250 AFY.
5. Estimated safe basin yield of Pico Creek underflow is 120 AFY
6. Seventy (70) AFY of Pico Creek livestock and domestic usage was reported by Hearst Holdings Inc. to the SWRCB in June 2010.
7. No estimates of basin yield exist
8. One thousand, six hundred seven (1,607) AFY of Arroyo De La Cruz Underflow is reported in the SWRCB diversion database as a permitted appropriative water right for Hearst Holdings Inc.
9. Estimated safe basin yield is 1,244 AFY and all pumping is for agricultural or rural users
10. Diversions from sources other than the three basins noted above total 238 AFY according to diversion reporting forms to the SWRCB from Hearst Holdings Inc. (June 2010) and the SWRCB diversion database.
11. It is uncertain whether an agricultural or rural supply deficit exists. If the users are drawing water from the San Carpoforo groundwater basin, then it is unlikely that a deficit exists. Future studies should invest the resources to determine which groundwater basins are used by the agricultural and rural water users.
12. See Note 3.
13. By exchange via Whale Rock and by building a pipeline from the reservoir.
14. Potential strategy using recycled water.
15. On stream storage was proposed for San Simeon Creek in previous studies.
16. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
17. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
18. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.
19. Includes Low Impact Development/Rainwater Harvesting.

4.8.12.2 Cambria WPA 2

Groundwater is the primary water supply source for this WPA. The primary constraints on the groundwater availability in this WPA include physical limitations and potential water quality issues. Currently the San Simeon Valley Groundwater Basin, which supplies water to the Cambria CSD, has a maximum extraction limit of 1,230 AFY set by the State Board. The Santa Rosa Valley Groundwater Basin, which also supplies Cambria CSD, has a maximum extraction limit of 518 AFY set by the State Board. Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (Cambria CSD WMP, 2008).

Levels for the groundwater basins in this WPA are likely highest during the wet season. They steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. During drought periods, creek flows are likely insufficient to adequately recharge the basins and groundwater levels could subsequently be lowered significantly due to pumping. Significant lowering of basin groundwater levels at or below sea level near the coast could lead to seawater intrusion and degradation of water quality.

4.8.12.2.1 *Water Management Strategies*

Cambria CSD serves the primary population center and is the largest urban water user in this WPA. Due to the supply limitations of the San Simeon and Santa Rosa Valley Groundwater Basins, an alternative supply is necessary to meet existing seasonal deficits and future demands. Water conservation measures have been implemented and there is minimal opportunity to further reduce water demands. Further mandatory or emergency conservation would be used to off-set an emergency or reliability supply, not to support growth. Two water management strategies are likely the most feasible options to consider for Cambria CSD's future water supply:

- Desalination
- Recycled water

To meet the additional water supply needs and to increase water supply reliability, the Cambria CSD plans to construct a seawater desalination plent to produce up to 602 AFY. This plant would operate during the dry season to augment supply during that period of high demand. A decentralized recycled water program is also planned, with an estimated 180 AFY made available for unrestricted irrigation use.

Other water management strategies that received a moderate designation for implementation potential include further conservation and land use management (includes low impact development and rainwater harvesting).

Table 4.55 Cambria WPA 2 Water Management Strategies				
	Cambria CSD	**Agriculture**	**Rural**	**Environmental**
Demand				
Existing Demand (AFY)	706	640	100	
Forecast Demand (AFY)	1,009-1,514[1]	740-1,490	190-220	
Supply				
San Simeon Valley Basin (AFY)[2]	1,230[4][6]	Uncertain	Uncertain	
Santa Rosa Valley Basin (AFY)[3]	518[5][6]	Uncertain	Uncertain	
Villa Valley Basin (AFY)	0	[7]	[7]	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	[8]	[8]	
Total Supply (AFY)	**1,748**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)[13]				51,460
Unimpaired Mean Annual Discharge(AFY)[14]				87,050
Water Supply Versus Demand Balance	**Existing Seasonal and Future Deficit[9]**	**Possible Deficit[10]**	**Possible Deficit[10]**	**Uncertain[15]**
Water Management Strategies and Potential for Implementation				
Further Conservation	Moderate	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project[11]				
Land Use Management[16]	Moderate	Moderate	Moderate	

Table 4.55 Cambria WPA 2 Water Management Strategies				
	Cambria CSD	**Agriculture**	**Rural**	**Environmental**
Recycled Water	**180 AFY**			
Optimize Use of State Water Project				
Groundwater Banking/Recharge				
Groundwater Supply Sources		**Greater**	**Greater**	
Salinas Reservoir Expansion/Exchange				
Desalination	**602 AFY**			
Lopez Lake Expansion/Exchange				
New Off Stream Storage		Moderate		
Nipomo Supplemental Water Project				
Precipitation Enhancement				
New On Stream Storage(12)				

Notes:
1. The low end of the demand range for Cambria CSD represents maintaining current conservation practices and is the lowest demand scenario from the district's water master plan.
2. Estimated safe basin yield is 1,040 AFY
3. Estimated safe basin yield is 2,260 AFY
4. SWRCB allows Cambria CSD 1,230 AFY maximum extraction and 370 AF dry season extraction
5. SWRCB allows Cambria CSD 518 AFY maximum extraction and 260 AF dry season extraction
6. California Coastal Commission limits Cambria CSD total diversion from both San Simeon and Santa Rosa Creeks to 1,230 AFY
7. Estimated safe basin yield is 1,000 AFY and all pumping is for agricultural or rural users
8. Diversions do not distinguish type of use. Potentially 158 AFY could be diverted for use to either agriculture or rural residential.
9. Although the existing annual supply and demand indicates a surplus, the dry season extraction limit creates a seasonal supply deficit.
10. It is uncertain whether an agricultural or rural supply deficit exists. If the users are drawing water from the Villa Valley groundwater basin, then the demands are approaching the basin yield. Future studies should invest the resources to determine which groundwater basins are used by the agricultural and rural water users.
11. By exchange and building a pipeline from Whale Rock Reservoir.

Table 4.55 Cambria WPA 2 Water Management Strategies				
	Cambria CSD	**Agriculture**	**Rural**	**Environmental**

12. On stream storage was proposed for San Simeon Creek in previous studies.
13. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
14. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
15. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.
16. Includes Low Impact Development/Rainwater Harvesting.

4.8.12.3 Cayucos WPA 3

Whale Rock Reservoir is the primary source of supply for urban users and groundwater is the primary water supply source for agriculture and rural users in this WPA. The primary constraints on the groundwater availability in this WPA include physical limitations and potential water quality issues. The shallow alluvial deposits that characterize these groundwater basins are typically more susceptible to drought impacts than deeper formation aquifers. They have less groundwater storage and consequently have less capacity for resource utilization and banking. Water level and well capacity declines during drought periods limit water availability, and sea water intrusion is the primary constraint in the lower portions of the basins.

Whale Rock Reservoir is part of the Old Valley Groundwater Basin. Basin groundwater users downstream of the reservoir include members of the Cayucos Area Water Organization (CAWO). The combined groundwater and Whale Rock Reservoir surface water allocation for CAWO in Old Valley is 600 AFY.

4.8.12.3.1 *Water Management Strategies*

CAWO members, which include Morro Rock Mutual Water Company (Morro Rock MWC), Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A), the Cayucos Cemetery District (CCD), are the primary urban users within this WPA. Whale Rock Reservoir allocations to CAWO members are sufficient to provide existing demands and meet forecast build-out demands. CSA 10A has procured an additional entitlement of 25 AFY through the Nacimiento Water Project. This water will be taken from the Whale Rock Reservoir in an exchange agreement with the City of San Luis Obispo. The agreement allows up to 90 AFY to be exchanged, which may be a way to address any future needs of the CAWO. Nacimiento Water Project water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association as part of this arrangement.

Table 4.56 Cayucos WPA 3 Water Management Strategies

	Morro Rock MWC[1]	Paso Robles Beach Water Association[1]	CSA 10A[1]	Cayucos Cemetery District[1]	Agriculture	Rural	Environmental
Demand							
Existing Demand (AFY)	121	163	132	16	520	80	
Forecast Demand (AFY)	164-173	207-218	220-232	17-18	430-800	130-140	
Supply							
Whale Rock (Supplies Urban Demands) (AFY)	170	222	190	18	0	0	
Whale Rock (Supplies Mainini Ranch and Ogle) (AFY)	-	-	-	-	64	0	
Nacimiento Water Project (2010) (AFY)[2]	0	0	25 - 90	0	0	0	
Cayucos Valley Basin (AFY)	0	0	0	0	[3]	[3]	
Old Valley Basin (AFY)[4]	-	-	-	-	-	-	
Toro Valley Basin (AFY)	0	0	0	0	[5]	[5]	
Other Groundwater Supply Sources (AFY)	0	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	3[6]	0	0	0	[7]	[7]	
Total Supply (AFY)	**173**	**222**	**215 - 280**	**18**	**Uncertain**	**Uncertain**	
Environmental Water Demand							
Environmental Water Demand (AFY)[10]							26,160
Unimpaired Mean Annual Discharge (AFY)[11]							33,340
Water Supply Versus Demand Balance	**At Supply Limit**	**At Supply Limit**	**At Supply Limit**	**At Supply Limit**	**Uncertain[8]**	**Uncertain[8]**	**Uncertain[12]**
Water Management Strategies and Potential for Implementation							
Further Conservation	Moderate	Moderate	Moderate	Moderate	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project	**Greater[2]**	**Greater[2]**	**Greater[2]**				
Land Use Management[9]	Moderate	Moderate	Moderate		Moderate	Moderate	
Recycled Water							
Optimize Use of State Water Project							
Groundwater Banking/Recharge							

Table 4.56 Cayucos WPA 3 Water Management Strategies

	Morro Rock MWC[1]	Paso Robles Beach Water Association[1]	CSA 10A[1]	Cayucos Cemetery District[1]	Agriculture	Rural	Environmental
Groundwater Supply Sources	Moderate[6]				**Greater**	**Greater**	
Salinas Reservoir Expansion/Exchange							
Desalination							
Lopez Lake Expansion/Exchange							
New Off Stream Storage					Moderate		
Nipomo Supplemental Water Project							
Precipitation Enhancement							
New On Stream Storage							

Notes:
1. The Cayucos Area Water Organization includes the Morro Rock MWC, the Paso Robles Beach Water Association, CSA 10A, and the Cayucos Cemetery District. The low end of the forecast demand range assumes 5% additional conservation (beyond what has already been accomplished) at build-out.
2. CSA 10A has procured 25 - 90 AFY of Nacimiento Water Project via exchange with City of San Luis Obispo for Whale Rock Reservoir water. Agreement provisions allow for up to 90 AFY of NWP if necessary. Nacimiento water could be delivered to Morro Rock MWC or Paso Robles Beach Water Association, as part of this arrangement.
3. Estimated safe basin yield is 600 AFY and the majority of pumping is for agricultural or rural users, but a small public water system does serve a mobile home park.
4. Includes Whale Rock Reservoir. Most of the wells extract water that is replenished by recharge from Whale Rock Reservoir. Water drawn from these wells is also limited by the 664 AFY entitlement from Whale Rock Reservoir. Note that CAWO agencies receive water directly from the reservoir via pipeline and the treatment plant.
5. Estimated safe basin yield is 500 AFY and the majority of pumping is for agricultural or rural users
6. Only 3 AFY is diverted for a school and park irrigation, but up to 56 AFY is the permitted diversion from Little Cayucos Creek underflow. 56 AFY is part of the 600 AFY safe basin yield for the Cayucos Valley Basin. Due to water quality, the remaining 53 AFY could be used for domestic supply following treatment.
7. Diversions do not distinguish type of use. Potentially 65 AFY could be diverted for use to either agriculture or rural residential.
8. It is uncertain but unlikely that an existing agricultural or rural supply deficit exists. The yield from the Cayucos Valley and Toro Valley basins exceed existing demand. It is possible that future demands could exceed supply. Future studies should invest the resources to determine which groundwater basins are used by the agricultural and rural water users.
9. Includes Low Impact Development/Rainwater Harvesting.
10. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
11. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
12. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

Since the forecast build-out demands will push the CAWO members to their supply limit, an alternative supply should be developed as a reliability reserve. Water conservation measures provide minimal opportunity to further reduce water demands. Further mandatory or emergency conservation would be used to off-set an emergency or reliability supply, not to support growth. The most viable option for a reliability reserve supply is the NWP, since the existing agreement with CSA 10A allows up to 90 AFY to be exchanged.

Other water management strategies that received a moderate designation for implementation potential include further conservation and land use management (includes low impact development and rainwater harvesting).

The combination of full 90 AFY NWP exchange and emergency conservation measures would provide the CAWO members with reliability reserve.

4.8.12.4 Morro Bay WPA 4

This WPA uses a diverse blend of surface water (local and imported), groundwater, desalination, and State Board permitted water diversions. The City of Morro Bay and the agencies that make up the Chorro Valley Water System (CMC, Cuesta College, Camp San Luis Obispo, and County Operations Center/Office of Education) represent the urban users in this WPA.

The primary constraints on groundwater availability in this WPA include physical limitations, water quality issues, and water rights. Shallow alluvial deposits are typically more susceptible to drought impacts. For the upper Morro Valley and Chorro Valley Groundwater Basins, water level and well capacity declines during drought periods limit the availability of the resource, while in the lower valley area, sea water intrusion would be the primary constraint. Elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field, where appropriative water right permits from the State Board also limit production. The State Board permitted allocation allows withdrawals from the Chorro Basin only when creek flows exceed 1.4 cubic feet per second (cfs). Nevertheless, strategic management of these sources should allow the City of Morro Bay to reliably extract 581 AFY from the Morro Basin and 566 AFY from the wells that penetrate the Chorro Basin, for a total of 1,147 AFY, even in dry years.

The State Water Project provides water to the City of Morro Bay, CMC, County Operations Center/Office of Education, and Cuesta College. The SWP shuts down for annual maintenance activities each fall/winter during which the City of Morro Bay has used its alternative supplies. In 2008, the SWP shutdown took place when groundwater quality issues were limiting the City of Morro Bay's use of well water. The shortfall was made up for through an agreement with CMC to provide the Morro Bay with water during that period. In

addition, The SWP is considered a supplementary source of water supply since hydrologic variability, maintenance schedules, and repair requirements can cause reduced deliveries or complete shut down of the delivery system. Since delivery to the Central Coast began, the SWP has provided between 50 and 100 percent of the contracted allocations, but recently, the drought coupled with pumping restrictions in consideration of endangered species habitat lowered that amount to 35 percent in 2008 and 40 percent in 2009. This Master Water Report assumed an average allocation of 66 percent of the contract water service amount for determining supply.

CMC, Camp San Luis Obispo, and County Operations Center/Office of Education also receive water from Whale Rock and Chorro Reservoirs. Raw lake water is pumped from Whale Rock to CMC for treatment. The net storage capacity of both of these reservoirs has decreased due to siltation. Flow must also be maintained in Chorro Creek downstream of the reservoir for riparian habitat enhancement.

Although not a surface water supply counted in the demand/supply balance for this WPA, the Salinas Reservoir waterline was extended from the Cuesta Water Tunnel to the Chorro Reservoir as part of the original improvements in World War II. The pipeline has only been used to convey water from the Salinas Reservoir to Camp San Luis Obispo twice since construction, but is available for emergency conditions.

More detailed discussion on the water rights and related agreements between the various agencies in this WPA is provided in section 3.7.6.

4.8.12.4.1 *Water Management Strategies*

The City of Morro Bay and the Chorro Valley Water System are the primary population centers and urban water users in this WPA. As shown in Table 4.57 below, these users have adequate supply to meet existing and forecast demands. However, during a SWP shut down for annual maintenance, the City of Morro Bay experienced a supply shortfall that was made up through an agreement with CMC to provide the Morro Bay with water during that period.

The purveyors in this WPA should consider enhancing their contingency or reliability supply. Due to the diversity in water supply sources, Morro Bay and the Chorro Valley Water System have several likely feasible options to consider (listed below). Water conservation measures have been fully implemented in Morro Bay and there is minimal or no opportunity to further reduce water demands. However, conservation is an option for the Chorro Valley Water System. As discussed above, further mandatory or emergency conservation would be used to off-set an emergency or reliability supply, not to support growth.

- Further conservation (Chorro Valley Water System)
- Unsubscribed Nacimiento Water Project
- Recycled water
- Optimized use of State Water Project
- Desalination

Morro Bay modernized its desalination plant to restore its full capacity, and it could double the capacity if necessary for future reliability needs. It is also interested in an additional 750 AFY of State Water Project and 1,500 AFY of Drought Buffer, if it became available. Other potential future supplies include the jointly operated Morro Bay - Cayucos Sanitary District Wastewater Treatment Plant. The plant is slated for a major upgrade in 2014. Production of tertiary effluent will be provided, and thus could be a source of future water recycling to augment water supplies.

The Chorro Valley Water System could implement conservation measures to reduce its water demand. CMC is considering participation in the Nacimiento Water Project. CMC has contacted the District requesting from 200 AFY to 400 AFY of Nacimiento Water for future supply reliability and minor demand increases. CMC and Cuesta College have also expressed interest in any State Water that may become available.

These additional supplies are not required to satisfy an existing or anticipated future demand, but to develop a reliability reserve, or to develop a contingency plan that would provide the ability to manage future unforeseen or unpredictable long-term impacts to water resources. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting), groundwater banking/recharge, and Salinas Reservoir Expansion/Exchange.

Table 4.57 Morro Bay WPA 4 Water Management Strategies

	Morro Bay	CMC[2]	Camp San Luis Obispo (National Guard)[2]	County Operations Center/Office of Education[2]	Cuesta College[2]	Agriculture	Rural	Environmental
Demand								
Existing Demand (AFY)	1,620[1]	1,135	138	94	125	2,060	120	
Forecast Demand (AFY)	2,040[1]	1,135	138	94	125	1,690 - 2,440	190 - 220	
Supply								
State Water Project (AFY)[3]	1,313	735[4]	0	150[4]	140[4]	0	0	
Desalination Plant (AFY)	645	0	0	0	0	0	0	
Whale Rock Reservoir (AFY)	0[5]	420	0	25[6]	0	0	0	
Chorro Reservoir (AFY)	0	25[7]	140	0	0	25[8]	0	
Morro Valley Basin (AFY)[9]	581	0	0	0	0	Uncertain[9]	Uncertain[9]	
Chorro Valley Basin (AFY)[10]	566	0	200[11]	0	0	Uncertain[10]	Uncertain[10]	
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	Uncertain	Uncertain	
Recycled Water (AFY)	0	0	0	0	0	0	275[12]	
SWRCB Water Diversions (AFY)	0	0	0	3	0	[13]	[13]	
Total Supply (AFY)	**3,105**	**1,180**	**340**	**178**	**140**	**Uncertain**	**Uncertain**	
Environmental Water Demand								
Environmental Water Demand (AFY)[21]								27,880
Unimpaired Mean Annual Discharge (AFY)[22]								43,430
Water Supply Versus Demand Balance	**Adequate Supply, but Possible Deficit[14]**	**Adequate Supply**	**At Supply Limit[15]**	**Adequate Supply[16]**	**Adequate Supply**	**Uncertain[17]**	**Uncertain[17]**	**Uncertain[23]**
Water Management Strategies and Potential for Implementation								
Further Conservation		**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project	Moderate[18]	**200 - 400 AFY**	Moderate[18]		Moderate[18]			

Table 4.57 Morro Bay WPA 4 Water Management Strategies

	Morro Bay	CMC[2]	Camp San Luis Obispo (National Guard)[2]	County Operations Center/Office of Education[2]	Cuesta College[2]	Agriculture	Rural	Environmental
Land Use Management[19]	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Recycled Water	**Greater**[20]	Existing		Existing		Moderate[20]	Moderate[20]	
Optimize Use of State Water Project	**750 AFY**	**Greater**			**Greater**			
Groundwater Banking/Recharge	Moderate[20]					Moderate[20]	Moderate[20]	
Groundwater Supply Sources						**Greater**	**Greater**	
Salinas Reservoir Expansion/Exchange		Moderate	Moderate					
Desalination	**645 AFY**							
Lopez Lake Expansion/Exchange								
New Off Stream Storage						Moderate		
Nipomo Supplemental Water Project								
Precipitation Enhancement								
New On Stream Storage								

Notes:
1. Water demands based on the 2005 Urban Water Management Plan (UWMP), which will be updated for the 2010 UWMP. Year 2009 demands were less than 1,620 AFY.
2. Part of Chorro Valley Water System.
3. State Water Project average allocation assumed 66 percent of contract water service amount.
4. CMC receives 60 AFY of Cuesta College 200 AFY allocation. County Operations Center provides up to 275 AFY from their 425 AFY State Water Project allocation to CMC. Totals in table reflect these agreements.
5. Mutual aid agreements with CMC and Whale Rock Commission for emergency supply only.
6. 25 AFY of Whale Rock water provided by CMC as part of the County Well No. 1 development agreement.
7. Rights to any Chorro Reservoir excess from Camp San Luis Obispo.
8. Mainini Ranch has agreement with Camp San Luis Obispo for a delivery of up to 25 AFY.
9. Estimated safe basin yield is 1,500 AFY and the groundwater is used by urban, agriculture and rural users.
10. Perennial yield estimated at 2,210 AFY and the groundwater is used by urban, agriculture and rural users.
11. County Well No. 1.
12. Dairy Creek Golf Course owned and operated by the County of San Luis Obispo.
13. Diversions do not distinguish type of use. Potentially 475 AFY could be diverted for use to either agriculture or rural residential.
14. State Water Project annual maintenance and summer peak demands could create water supply deficits that requires Morro Bay to use lower quality groundwater and more expensive treatment measures.
15. Additional 200 AFY when County Well No. 1 is operating.
16. Surplus increases from 56 to 81 AFY when County Well No. 1 is operating.
17. It is uncertain but unlikely that an existing agricultural or rural supply deficit exists. The yield from the Morro Valley and Chorro Valley basins exceed existing demand. It is possible that future demands could exceed supply. Future studies should invest the resources to determine which groundwater basins are used by the agricultural and rural water users. Also, since SWRCB diversions account for a large supply, quantifying the locations of these sources would be beneficial.
18. By exchange for Whale Rock Reservoir water.

Table 4.57 Morro Bay WPA 4 Water Management Strategies								
	Morro Bay	**CMC[(2)]**	**Camp San Luis Obispo (National Guard)[(2)]**	**County Operations Center/Office of Education[(2)]**	**Cuesta College[(2)]**	**Agriculture**	**Rural**	**Environmental**

19. Includes Low Impact Development/Rainwater Harvesting.
20. The effluent from the upgrade to the Morro Bay/Cayucos Sanitation District Wastewater Treatment plant may benefit Morro Bay and/or surrounding agricultural and rural lands.
21. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
22. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
23. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.8.12.5 Los Osos WPA 5

The Los Osos Valley Groundwater Basin is the primary water supply source for this WPA. The primary constraint on water availability in this groundwater basin is deteriorating water quality due to sea water intrusion and nitrate contamination. The County of San Luis Obispo Planning Department has determined that the basin is currently at a certified Level III severity rating (resource capacity has been met or exceeded) due to sea water intrusion.

4.8.12.5.1 *Water Management Strategies*

Basin groundwater users in the Los Osos Valley Groundwater Basin include Golden State Water Company, S&T Mutual, the Los Osos Community Services District, and overlying users. The three local water purveyors, along with the County of San Luis Obispo, are currently preparing a Basin Management Plan under a court-approved Interlocutory Stipulated Judgment (ISJ).

One of the proposed strategies for mitigating sea water intrusion involves shifting production from lower aquifer wells near the coast to wells closer to or within the Los Osos Creek Valley. This approach will balance the distribution of pumping between the upper and lower aquifers to mitigate sea water intrusion. Other strategies involve future wastewater disposal/reuse options and increased conservation. The Los Osos wastewater project, one of the primary tools in future groundwater basin management, is being planned by the County to reduce nitrate loading in the basin, to provide wastewater reuse opportunities within the basin, and to help resolve the Level III water availability shortage. The community of Los Osos has been subject to a building moratorium since 1988, which has resulted in only limited development.

The County Planning Department has implemented an indoor retrofit-upon-sale program as a result of the Level of Severity III certification. A mandatory fixture replacement program, which is part of the wastewater treatment facility project, will replace all toilets and urinals in the wastewater service area with low-flow devices. This action could reduce overall water consumption by 20 to 25 percent, with similar reductions expected in wastewater flows. The objective of fixture replacement program is to reduce indoor water use to 50 gallons per capita per day within the wastewater service area.

The strategies discussed above are likely the most feasible options to consider for Los Osos. Other water management strategies include:

- Land use management
- Groundwater banking/recharge
- Groundwater supply resources

Table 4.58 Los Osos WPA 5 Water Management Strategies

	Los Osos CSD	S&T MWC	Golden State Water Company	Agriculture	Rural	Environmental
Demand						
Existing Demand (AFY)	951	94	998	3,290	20	
Forecast Demand (AFY)	835-1,044[1]	77-96[1]	1,384-1,730[1]	2,750-3,770	20	
Supply						
Los Osos Valley Basin (AFY)	[2]	[2]	[2]	[2]	[2]	
Other Groundwater Supply Sources (AFY)	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	[3]	[3]	
Total Supply (AFY)	[2]	[2]	[2]	[2]	[2]	
Environmental Water Demand						
Environmental Water Demand (AFY)[7]						7,040
Unimpaired Mean Annual Discharge (AFY)[8]						8,200
Water Supply Versus Demand Balance	**[4]**	**[4]**	**[4]**	**[4]**	**[4]**	**Uncertain[9]**
Water Management Strategies and Potential for Implementation						
Further Conservation	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project						

Table 4.58 Los Osos WPA 5 Water Management Strategies

	Los Osos CSD	S&T MWC	Golden State Water Company	Agriculture	Rural	Environmental
Land Use Management[5]	**Greater**	**Greater**	**Greater**	Moderate	Moderate	
Recycled Water	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Optimize Use of State Water Project						
Groundwater Banking/Recharge	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Groundwater Supply Sources	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Salinas Reservoir Expansion/ Exchange						
Desalination[6]						
Lopez Lake Expansion/Exchange						
New Off Stream Storage				Moderate		
Nipomo Supplemental Water Project						
Precipitation Enhancement						
New On Stream Storage						

Notes:
1. The low end of the forecast demand range assumes 20 percent additional conservation (beyond what has already been accomplished) at build-out of current general plan.
2. Estimated safe basin yield is 3,200 AFY and all pumping is for urban, agricultural or rural users. Purveyors have 2,100 AFY available for their use. The remaining 1,100 AFY is used for agricultural irrigation, private domestic use, and golf course irrigation (Los Osos Groundwater Basin Update, ISJ

Table 4.58 Los Osos WPA 5 Water Management Strategies

	Los Osos CSD	S&T MWC	Golden State Water Company	Agriculture	Rural	Environmental

Working Group, May 4, 2010).

3. Diversions do not distinguish type of use. Potentially 46 AFY could be diverted for use to either agriculture or rural residential.
4. The Los Osos water purveyors and the County of San Luis Obispo have released an update on the Los Osos Groundwater Basin. The work was prepared under the Interlocutory Stipulated Judgment (ISJ) agreement, which is a Court directed process to resolve the lawsuit filed as a result of seawater intrusion in the Los Osos Groundwater Basin. The parties to the ISJ agreement are preparing a Basin Management Plan (BMP) to address the seawater intrusion problem and provide for sustainable use of the water supply for Los Osos. One of the goals of the Basin Management Plan is to quantify each party's rights to rely on the basin's water resources.
5. Includes Low Impact Development/Rainwater Harvesting.
6. Brackish water treatment
7. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
8. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
9. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.8.13 South Coast Sub-Region

4.8.13.1 San Luis Obispo/Avila WPA 6

This WPA uses a diverse blend of surface water (local and imported), groundwater, and recycled water. The City of San Luis Obispo, Cal Poly, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, CSA 12, and Port San Luis represent the urban users in this WPA.

The San Luis Valley and Avila Valley Sub-basins do not provide a significant supply to the urban users when compared to the surface water supplies. The primary constraints on water availability in the San Luis Valley Sub-basin include physical limitations, water quality issues, and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts. Elevated nitrates are a constraint for drinking water availability at some of the City of San Luis Obispo wells. Similar constraints on water availability are experienced in the Avila Valley Sub-basin.

The State Water Project provides water to the Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, and CSA 12. The SWP is considered a supplementary source of water supply since hydrologic variability, maintenance schedules, and repair requirements can cause reduced deliveries or complete shut down of the delivery system. Since delivery to the Central Coast began, the SWP has provided between 50 and 100 percent of the contracted allocations, but recently, the drought coupled with pumping restrictions in consideration of endangered species habitat lowered that amount to 35 percent in 2008 and 40 percent in 2009. This Master Water Report assumed an average allocation of 66 percent of contract water service amount for determining supply.

Whale Rock Reservoir supplies water to San Luis Obispo and Cal Poly. Raw lake water is pumped from Whale Rock to the City of San Luis Obispo for treatment. The City of San Luis Obispo operates the Salinas Reservoir and Whale Rock Reservoir in a coordinated manner to maximize the available water from these sources. The combined yield from the two reservoirs can be maximized by utilizing water from Salinas as the City of San Luis Obispo's primary source, and using Whale Rock as a backup source. This approach increases the long-term water supply from these two sources (excerpt from City's General Plan, revised July 2010).

Lopez Lake Reservoir supplies water to Avila Beach CSD, Avila Valley MWC, and CSA 12.

Future water sources include the Nacimiento Water Project, which is scheduled to go online in 2010/11, will supply up to 3,380 AFY to the City of San Luis Obispo.

The City of San Luis Obispo's Water Reclamation Facility currently delivers 130 AFY, but will deliver up to 1,000 AFY of recycled water for irrigation and other approved uses in the future.

4.8.13.1.1 *Water Management Strategies*

The City of San Luis Obispo maintains sufficient supply to meet existing and anticipated future demands, and provide a reliability supply. The other urban users are either at their supply limit or could experience a future deficit, except for Port San Luis. Port San Luis possesses sufficient supply for existing and anticipated future demands.

Cal Poly, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, and CSA 12 should consider enhancing their water supply to meet build-out demands or to provide contingency or reliability supply. Water conservation measures could be increased at Cal Poly to reduce the amount of additional supply needed. Otherwise, Cal Poly will continue to rely on Whale Rock Reservoir. Further conservation measures are an option for the other water purveyors, but additional conservation is not expected to result in a large demand reduction. Further mandatory or emergency conservation would be used to off-set an emergency or reliability supply, not to support growth.

Optimizing the use of State Water Project water is the management strategy that is likely the most feasible option to consider for Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, and CSA 12. Further consideration should be given to the Interagency Arrangements and Exchanges discussed in Section 3.9.2 to move water within the County and to match demands with available sources at different times during the year.

Other water management strategies that received a moderate designation for implementation potential include:

- Unsubscribed Nacimiento Water Project
- Land use management
- Recycled water
- Salinas Reservoir Expansion/Recharge
- Desalination
- Lopez Lake Expansion/Exchange

Table 4.59 San Luis Obispo/Avila WPA 6 Water Management Strategies

	San Luis Obispo (includes airport)	Cal Poly San Luis Obispo	Avila Beach CSD	Avila Valley MWC	San Miguelito MWC	CSA-12	Port San Luis	Agriculture	Rural	Environmental
Demand										
Existing Demand (AFY)	6,389	1,040	51	32	263	68	35	3,610	450	
Forecast Demand (AFY)	7,499-7,894[1]	1,479-1,557[1]	162-170[1][17]	30-32[1]	373-393[1]	65-68[1]	33 - 35[1]	2,810–4,120	610–660	
Supply										
State Water Project (AFY)[2]	0	0	66[3]	20	275	7[4]	0	0	0	
Whale Rock Reservoir (AFY)	6,940[5]	1,384[6]	0	0	0	0	0	0	0	
Salinas Reservoir (AFY)	[5]	0	0	0	0	0	0	0	0	
Nacimiento Water Project (AFY)	3,380[7]	0	0	0	0	0	0	0	0	
Lopez Lake Reservoir (AFY)	0	0	68	12	0	61	100	0	0	
San Luis Valley Sub-basin (AFY)[8]	100	unmetered[9]	0	0	0	0	0	Uncertain[8]	Uncertain[8]	
Avila Valley Sub-basin (AFY)[10]	0	0	0	Uncertain	118	Uncertain[11]	0	Uncertain[10]	Uncertain[10]	
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	0	0	Uncertain	Uncertain	
Recycled Water (AFY)	130[16]	0	0	0	0	0	0	0	0	
SWRCB Water Diversions (AFY)	0	45	0[12]	0	0	0	0	[13]	[13]	
Loss of Availability due to Siltation to 2060 (AFY)	-500	0	0	0	0	0	0	0	0	
Total Supply (AFY)	**9,950[15]**	**1,429**	**134**	**32**	**393**	**68**	**100**	**Uncertain**	**Uncertain**	
Environmental Water Demand										
Environmental Water Demand (AFY)[19]										33,030
Unimpaired Mean Annual Discharge (AFY)[20]										45,820

Table 4.59 San Luis Obispo/Avila WPA 6 Water Management Strategies

	San Luis Obispo (includes airport)	Cal Poly San Luis Obispo	Avila Beach CSD	Avila Valley MWC	San Miguelito MWC	CSA-12	Port San Luis	Agriculture	Rural	Environmental
Water Supply Versus Demand Balance	**Adequate Supply[15]**	**At Supply Limit[9]**	**Future Deficit**	**At Supply Limit**	**At Supply Limit**	**At Supply Limit**	**Adequate Supply**	**Uncertain[14]**	**Uncertain[14]**	**Uncertain[21]**
Water Management Strategies and Potential for Implementation										
Further Conservation	Moderate (0 - 5% more)	**Greater**	Moderate	Moderate	Moderate	Moderate	Moderate	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project	Moderate[22]	Moderate								
Land Use Management[18]	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Recycled Water	**870 AFY[16]**	Moderate	Moderate		Moderate			**Greater[16]**		
Optimize Use of State Water Project			**Greater**	**20-40 AFY interest**	**10 AFY interest**	**30 AFY interest**				
Groundwater Banking/Recharge										
Groundwater Supply Sources										
Salinas Reservoir Expansion/ Exchange	Moderate[22]									
Desalination			Moderate							
Lopez Lake Expansion/Exchange			Moderate	Moderate	Moderate	Moderate	Moderate[22]			
New Off Stream Storage								Moderate		
Nipomo Supplemental Water Project										
Precipitation Enhancement										
New On Stream Storage										

Notes:
1. The low end of the forecast demand range assumes 5% additional conservation (beyond what has already been accomplished) at build-out for all urban users.
2. State Water Project average allocation assumed 66 percent of contract water service amount.
3. Avila Beach CSD has a 100 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 66 AFY.
4. Seven (7) AFY of SWP water allocated to the San Luis Coastal Unified School District.
5. The City of San Luis Obispo's withdrawals from the Salinas Reservoir are coordinated with Whale Rock Reservoir. San Luis Obispo's combined safe yield of the two reservoirs was 6,940 AFY in 2010.
6. Includes 600 AFY of treated water delivered from the City of San Luis Obispo.
7. Nacimiento Water Project is scheduled to go online in 2010/11.
8. Estimated safe basin yield is 2,000 AFY and all pumping is for urban, agricultural or rural users. The City of San Luis Obispo's use is approximately 100 AFY, but the City does not consider their 500 AFY share of the safe yield as part of its water resource availability. The remaining 1,500 AFY is available for other urban users, agricultural irrigation, and private domestic use.
9. Cal Poly's agricultural wells contribute to the supply but are not metered. It is likely that the groundwater supply and on-going conservation measures would eliminate the possible future deficit.
10. No basin yield numbers have been published for the Avila Valley Sub-basin.
11. Individual water users within CSA 12 boundary could request an exemption to install a private well and pump water from the Avila Valley Sub-basin. It is unknown the number of users with private wells, but it is likely minimal.
12. SWRCB water diversions database lists “Avila Beach County Water District” (now Avila Beach CSD) for 80 AFY from Canyon Creek underflow. The conditions were that Avila Beach CSD cannot use Canyon Creek Underflow as a supply once they have State Water. The creek diversion is no longer a source of supply for them.

Table 4.59 San Luis Obispo/Avila WPA 6 Water Management Strategies

	San Luis Obispo (includes airport)	Cal Poly San Luis Obispo	Avila Beach CSD	Avila Valley MWC	San Miguelito MWC	CSA-12	Port San Luis	Agriculture	Rural	Environmental

13. Diversions do not distinguish type of use. Potentially 207 AFY could be diverted for use to either agriculture or rural residential.
14. It is uncertain whether an existing agricultural or rural supply deficit exists. Not enough information exists to determine whether the yield from the San Luis Valley and Avila Valley basins exceed existing demand. It is possible that future demands could exceed supply. Future studies should invest the resources to determine which groundwater basins are used by the agricultural and rural water users.
15. City of San Luis Obispo's supply portfolio includes groundwater, but due to limitations on its use, the City will not consider this supply as part of its water resource availability. Siltation is expected to reduce reservoir capacity and supply by 10 acre-feet per year, or 500 af by year 2060. The water supply surplus calculation accounts for reduction in water availability due to siltation. The City includes a reliability reserve in their water supply portfolio.
16. The City's current recycled water use is 130 AFY. Expansion of the City of San Luis Obispo Water Reclamation Facility could make 4,690 AFY of recycled water available for use, but the current plans are to use only 1,000 AFY in the future. City has been approached about using recycled water for agriculture irrigation. Recycled water for agricultural usage provides the added benefit of maintaining an agricultural buffer around the City.
17. One hundred seventy (170) AFY includes 20 AFY from projected Tank Farm Development.
18. Includes Low Impact Development/Rainwater Harvesting.
19. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
20. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
21. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.
22. Exchange programs with these resources may be an option if needed in the future

4.8.13.2 South Coast WPA 7

The discussion for this WPA is broken down into:

- Edna Valley (Golden State Water Company)
- Northern Cities Management Area
- Nipomo Mesa Management Area
- Santa Maria Valley Management Area

4.8.13.2.1 *Edna Valley*

The Edna Valley Sub-basin groundwater users include Golden State Water Company, San Luis Country Club (golf course), a few small public water systems, agricultural growers, and private residences. The primary constraints on water availability in the Edna Valley portion of the basin are physical limitations and environmental demand. Lowering groundwater levels due to production in the basin may impact base flows to Pismo Creek, which support steelhead habitat. Another supply source is the wastewater treatment plant's recycled water effluent for irrigation, which is delivered to the golf course.

Additional water conservation measures should be implemented to reduce water demands. Other water management strategies include land use management.

4.8.13.2.2 *Northern Cities Management Area*

This WPA uses a diverse blend of surface water (local and imported) and groundwater. Pismo Beach, Arroyo Grande, Grover Beach and Oceano CSD, small public water systems (including Halcyon Water System), Lucia Mar Unified School District, and residential and agricultural overlying users represent the groundwater users in this WPA.

The Arroyo Grande Plain Hydrologic Sub-area (part of the Santa Maria Valley Groundwater Basin) provides from 30 to 100 percent of the water supply for the urban users. The groundwater extraction rights are shared by agreement with Pismo Beach, the City of Arroyo Grande, the City of Grover Beach, and the Oceano CSD. As party to the Santa Maria Valley Groundwater Basin litigation, extraction rights may be increased or decreased at a future date. Groundwater availability in the NCMA is primarily constrained by water quality issues and water rights. Basin sediments in the management area extend offshore along several miles of coastline, where sea water intrusion is the greatest potential threat to the supply. The major purveyors have agreed to share the water resources through a cooperative agreement that also sets aside water for agricultural use and for basin outflow, although the amount allocated for basin outflow has been deemed unreasonably low (Todd, 2007). Following the detection of evidence of seawater intrusion in 2009, the NCMA water purveyors worked cooperatively with each other and the District to reduce groundwater pumping. This approach included the following management strategies:

- Increased surface water use through delivery of surplus supplies from Lopez reservoir
- Expanded conservation programs and customer education
- Negotiations to secure an emergency allocation of additional State Water Project supplies, if needed
- Hydraulic evaluation and maintenance of the Lopez pipeline
- Increased groundwater monitoring
- Expanded regional cooperation

Going forward, the NCMA water purveyors plan to implement several initiatives to improve the long-term sustainability of their water supplies. These initiatives could include:

- Development of a groundwater model for the Santa Maria Valley Groundwater Basin
- Pursuit of additional permanent and emergency allocations of State Water Project supplies
- Enhanced conjunctive use of the groundwater basin
- Regional recycled water projects

All four cities receive Zone 3 Lopez Lake water as a contractual supply. Environmental protection issues may call for increased or decreased releases to Lopez Creek, potentially reducing or increasing the allotment available for the cities. Pismo Beach and Oceano CSD also receive SWP via contract with the District and delivery through Zone 3 facilities.

The City of Arroyo Grande also extracts groundwater from the Pismo Formation, which is outside the NCMA and receives water by a transfer agreement to purchase 100 AFY of Oceano CSD supplies from groundwater or Lopez Lake water. This temporary agreement ends in 2014.

Water conservation measures should be implemented to the fullest extent possible. Mandatory or emergency conservation measures would be used to off-set the need for additional or reliability supply, not to support growth.

Oceano CSD maintains adequate supply to meet existing and forecast build-out demands. With sufficient conservation, Oceano CSD should have adequate supply to not only meet its customer's needs, but also maintain a reliability supply. Oceano CSD's participation in the District's drought buffer program for State Water would improve water supply reliability in the event of drastic cut backs in SWP supplies.

The cities of Pismo Beach, Arroyo Grande, and Grover Beach have sufficient supply to meet existing demands, but would need to implement permanent conservation measures to meet forecast demands. The cities could experience a possible future supply deficit. To address this need, optimization of State Water supplies, recycled water, and groundwater banking/recharge are considered the most feasible water management strategy options to consider implementing.

Pismo Beach, in coordination with the NCMA, is also investigating the feasibility of increasing the safe yield of Lopez Reservoir. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting), groundwater supply sources and desalination.

If recycled water is not feasible for urban customers only, then a multi-use project could include urban and agriculture delivery from the South San Luis Obispo County or City of Pismo Beach WWTP.

4.8.13.2.3 *Nipomo Mesa Management Area*

This WPA uses groundwater for its primary supply and recycled water to a lesser extent. When the Nipomo supplemental water project comes on-line, it will provide imported water to this WPA. Groundwater users in the Nipomo Mesa Management Area include Golden State Water Company, Rural Water Company, Woodlands Mutual Water Company (MWC), ConocoPhillips, Nipomo Community Services District (Nipomo CSD), Lucia Mar Unified School District, small public water systems (serving residential, industrial and nursery/greenhouse operations), and commercial, agricultural and residential overlying users represent the groundwater users in this WPA.

Groundwater is pumped from the Nipomo Mesa Hydrologic Sub-area that is part of the Santa Maria Valley Groundwater Basin. Litigation involving use of this groundwater basin, which began in 1997, has resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights for Golden State Water Company, Rural Water Company, Woodlands MWC, ConocoPhillips and Nipomo CSD may be affected at a future date. In addition, the stipulated judgment required these users (except for ConocoPhillips) to develop alternative sources to import a minimum of 2,500 AFY. More detail on the agreement and mandated minimum delivery is presented in Section 3.7.7 above.

The primary constraints on water availability in the NMMA are physical limitations to the east, water quality on the west, and water rights. The base of permeable sediments rises toward the eastern boundary of the area, reducing groundwater in storage and increasing the susceptibility of wells to drought impacts and associated water level declines. To the west, where deeper sediments allow for greater storage fluctuations, sea water intrusion would limit the available fresh water. The Nipomo Mesa area is currently in a certified Level of Severity III for water supply (resource capacity has been met or exceeded), as defined by San Luis Obispo County.

Rural Water Company and Woodland MWC use recycled water for golf course irrigation.

Water conservation measures should be implemented to the fullest extent possible. Mandatory or emergency conservation measures would be used to off-set the need for additional or reliability supply, not to support growth.

Even with additional conservation measures in place, Golden State Water Company, Rural Water Company, Woodlands MWC, and Nipomo CSD could experience supply deficits if groundwater is insufficient to meet increases in demands. To address this need, recycled water, investigating other groundwater supply sources, and increasing delivery from the Nipomo supplemental water project are considered the most feasible water management strategy options to consider implementing.

Other water management strategies that received a moderate designation for implementation potential include:

- Land use management
- Optimize use of State Water Project
- Groundwater banking/recharge
- Desalination

4.8.13.2.4 *Santa Maria Valley Management Area*

The Santa Maria Valley Management Area (SMVMA) is part of the Santa Maria Valley groundwater basin adjudicated area and spans both San Luis Obispo and Santa Barbara Counties. Basin groundwater users in the San Luis Obispo County portion of the SMVMA consist primarily of agricultural overlying users, with some residential overlying users and a small public water system. The primary constraints on water availability in the San Luis Obispo County portion of the SMVMA are water quality and water rights. A natural outflow of fresh water must be maintained, both in the deeper aquifer zones where sea water pressures are greatest, and in the shallow alluvial zones where irrigation returns are concentrated. The operation of Twitchell Reservoir and the Superior Court Stipulated Judgment and Judgment after Trial affect groundwater availability.

Although there are no urban users in this WPA, the rural and agricultural users are encouraged to implement conservation measures to reduce demands. A water management strategy that could serve agricultural users is a recycled water project with one of the water purveyors in the NMMA. Land use management (includes low impact development and rainwater harvesting) received a moderate designation for implementation potential.

Table 4.60 South Coast WPA 7 Water Management Strategies

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach [1]	Arroyo Grande [1]	Grover Beach [1]	Oceano CSD[1]	Agriculture	Rural	Golden State Water Company[17]	Nipomo CSD[17]	Rural Water Company[17]	Woodlands Mutual Water Company[17]	Conoco Phillips[17]	Agriculture[17]	Rural[17]	Agriculture /Rural	Agriculture	Rural	
Demand																		
Existing Demand (AFY)	410	1,944 [2]	2,956[2]	1,787[2]	855[2]	2,056[2][3]	38	1,290[18]	2,698[27]	880[18]	810[18]	1,200[18]	3,800[18]	1,700[18]	25,540/37	19,920	1,480	
Forecast Demand (AFY)	434-482	2,679-2,977 [20]	3,735-4,150[20]	1,892-2,500[20]	1,277-1,419[20]	2,742	38	1,750-1,944[20]	2,984	Not Available	1,440-1,600[20]	1,260-1,400[20]	3,800-4,300	1,700	25,540/110	16,610-23,830	1,990-2,160	
Supply																		
State Water Project (AFY)[4]	0	1,240	0	0	495[6]	0	0	0	0	0	0	0	0	0	0	0	0	
Lopez Lake Reservoir (AFY)	0	896	2,290	800	303	0	0	0	0	0	0	0	0	0	0	0	0	
Edna Valley Sub-basin (AFY)[7]	410	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pismo Creek Valley Sub-basin (AFY)[8]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Arroyo Grande Plain Hydrologic Sub-area (part of Santa Maria Valley Groundwater Basin (AFY)[9]	0	700	1,202	1,198+225[14]	900	5,300[9]	36	0	0	0	0	0	0	0	0	Uncertain	Uncertain	
Arroyo Grande Valley Sub-basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Uncertain	Uncertain	
Agricultural Land Conversion Credit (AFY)[10]	0	0	112	209	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 4.60 South Coast WPA 7 Water Management Strategies

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach [1]	Arroyo Grande [1]	Grover Beach [1]	Oceano CSD[1]	Agriculture	Rural	Golden State Water Company[17]	Nipomo CSD[17]	Rural Water Company[17]	Woodlands Mutual Water Company[17]	Conoco Phillips[17]	Agriculture[17]	Rural[17]	Agriculture /Rural	Agriculture	Rural	
Transfers (AFY)[11]	0	0	100	0	-100	0	0	0	0	0	0	0	0	0	0	0	0	
Pismo Formation outside the NCMA (AFY)	0	0	80	0	0	0	0	0	0	0	0	0	0	0	0	Uncertain	Uncertain	
Nipomo Supplemental Water Project (AFY)[12]	0	0	0	0	0	0	0	208	2,167	208	417	0	0	0	0	0	0	
Nipomo Mesa Hydrologic Sub-area (part of Santa Maria Valley Groundwater Basin) (AFY)[13]	0	0	0	0	0	0	0	1,082	457	622	365	1,400	4,300	1,700	0	Uncertain	Uncertain	
Other Groundwater Supply Sources (AFY)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25,540/37	Uncertain	Uncertain	
Recycled Water (AFY)	87[19]	0	0	0	0	0	0	0	60-74	49-50	24-28	0	0	0	0	0	0	
SWRCB Water Diversions (AFY)	0	0	0	0	0	(15)	(15)	0	0	0	0	0	(15)	(15)	(15)	0	0	
Total Supply (AFY)	**482**	**2,836**	**3,794**	**2,432**	**1,598**	**Uncertain**	**Uncertain**	**1,290**	**2,698**	**880**	**810**	**1,400**	**Uncertain**	**Uncertain**	**Uncertain**	**Uncertain**	**Uncertain**	
Environmental Water Demand																		
Environmental Water Demand (AFY)[23]																		32,960

Table 4.60 South Coast WPA 7 Water Management Strategies

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach [1]	Arroyo Grande [1]	Grover Beach [1]	Oceano CSD[1]	Agriculture	Rural	Golden State Water Company[17]	Nipomo CSD[17]	Rural Water Company[17]	Woodlands Mutual Water Company[17]	Conoco Phillips[17]	Agriculture[17]	Rural[17]	Agriculture /Rural	Agriculture	Rural	
Unimpaired Mean Annual Discharge (AFY)[24]																		49,100
Water Supply Versus Demand Balance	**At Supply Limit**	**Possible Future Deficit[16]**	**Possible Future Deficit[16]**	**Possible Future Deficit[16]**	**Adequate Supply[16]**	**(16)**	**(16)**	**Possible Future Deficit[16]**	**Possible Future Deficit[16]**	**Possible Future Deficit[16]**	**Possible Future Deficit[16]**	**(16)**	**(16)**	**(16)**	**(16)**	**Uncertain**	**Uncertain**	**Uncertain[25]**
Water Management Strategies and Potential for Implementation																		
Further Conservation	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project																		
Land Use Management[22]	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate		Moderate	Moderate	Moderate	Moderate	Moderate	
Recycled Water	Existing	**Greater**	**Greater**	**Greater**		**Greater**		**Greater**	**Greater**	**Greater**	**774 AFY**	Moderate	**Greater**		**Greater**			
Optimize Use of State Water Project		**500 AFY**	**200-400 AFY**	**400 AFY**				Moderate	Moderate	Moderate	Moderate							
Groundwater Banking/ Recharge[26]		**Greater**	**Greater**	**Greater**		**Greater**		Moderate	Moderate	Moderate	Moderate		Moderate					
Groundwater Supply Sources		Moderate[21]						**Greater**	**Greater**	**Greater**	**Greater**							
Salinas Reservoir Expansion/ Exchange																		
Desalination			Moderate	Moderate				Moderate	Moderate	Moderate	Moderate							

Table 4.60 South Coast WPA 7 Water Management Strategies

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach [1]	Arroyo Grande [1]	Grover Beach [1]	Oceano CSD[1]	Agriculture	Rural	Golden State Water Company[17]	Nipomo CSD[17]	Rural Water Company[17]	Woodlands Mutual Water Company[17]	Conoco Phillips[17]	Agriculture[17]	Rural[17]	Agriculture /Rural	Agriculture	Rural	
Lopez Lake Expansion/ Exchange		Moderate	Moderate	Moderate														
New Off Stream Storage																Moderate		
Nipomo Supplemental Water Project								**Greater**	**Greater**	**Greater**	**300 AFY**							
Precipitation Enhancement																		
New On Stream Storage																		

Notes:

1. Part of the Northern Cities Management Area (NCMA)
2. 2010 Annual Monitoring Report Northern Cities Management Area, Table 1. 2009 and 2008 demands listed below for reference.
   Pismo Beach reported 2,039 AFY in 2009 and 2,208 AFY in 2008
   Arroyo Grande reported 3,315 AFY in 2009 and 3,579 AFY in 2008
   Grover Beach reported 1,941 AFY in 2009 and 2,051 AFY in 2008
   Oceano CSD reported 885 AFY in 2009 and 933 AFY in 2008
   Agriculture reported 2,742 AFY in 2009 and 2008
3. Rural residential reported 36 AFY in 2009 and 2008. Agriculture is grouped in a category referred to as "Applied Irrigation" which is private water used for non-domestic purposes. In the NCMA, Applied Irrigation demands are defined by agriculture and irrigated turf grass at schools and a golf course. Of the 2,056 AFY Applied Irrigation demand, agriculture likely accounted for 1,933 AFY (or 94 percent).
4. State Water Project average allocation assumed 66 percent of contract water service amount.
5. Intentionally left blank.
6. Oceano CSD has a 750 AFY allocation, but no drought buffer. Therefore, the 66 percent assumption for State Water Project delivery is 495 AFY.
7. Edna Valley Sub-basin estimated safe basin yield is 4,000 AFY and all pumping is for urban, agricultural, rural users, golf courses, and CSA 18.
8. There is no estimate of the Pismo Creek Valley Sub-basin (basin-wide yield). The yield of the alluvial basin in the Spanish Spring ranch area has been estimated at 200 AFY.
9. Safe yield of 9,500 AFY with subdivisions for applied irrigation (5,300 AFY), subsurface outflow to the ocean (200 AFY), and urban use (4,000 AFY). The 2002 Groundwater Management Agreement safe yield allotment for urban use is broken down per the numbers shown.
10. 2002 Settlement Agreement provides that groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses.
11. Arroyo Grande has an active agreement to purchase 100 AFY of Oceano CSD supplies from groundwater or Lopez Lake water. This temporary agreement ends in 2014.
12. Nipomo supplemental water project includes Nipomo CSD, Woodlands MWC, Golden State Water Company, and Rural Water Company. Nipomo CSD will receive approximately 1,667 AFY and has reserved an additional 500 AFY. The other three will receive 833 AFY.
13. For the NMMA purveyors, the groundwater supply was calculated as the difference between the current demand and the other sources of supply (e.g. recycled water, Nipomo supplemental water project).
14. Non-potable groundwater pumped from irrigation wells used on the State Parks Department golf course and a City park. The portion of the 225 AFY attributed to the golf course predates the Gentlemen's Agreement. The portion for the park is a substitute for preexisting agricultural use on the park site.
15. Diversions do not distinguish type of use. Potentially 1,243 AFY could be diverted for use to either agriculture or rural residential in WPA 7.
16. The NCMA cities, NMMA cities, County, District, and local land owners actively and cooperatively manage surface and groundwater with the goal of preserving the long-term integrity of water supplies in the NCMA and NMMA.
17. Part of the Nipomo Mesa Management Area (NMMA)
18. 2009 Annual Monitoring Report Nipomo Mesa Management Area. 2008 demands listed below for reference.
    Golden State Water Company reported 1,380 AFY in 2008 and 1,290 AFY in 2009

Table 4.60 South Coast WPA 7 Water Management Strategies

	Golden State Water Co. (Edna Valley)	Northern Cities Management Area						Nipomo Mesa Management Area							Santa Maria Valley Management Area	Outside Management Areas		Environmental
		Pismo Beach [1]	Arroyo Grande [1]	Grover Beach [1]	Oceano CSD[1]	Agriculture	Rural	Golden State Water Company[17]	Nipomo CSD[17]	Rural Water Company[17]	Woodlands Mutual Water Company[17]	Conoco Phillips[17]	Agriculture[17]	Rural[17]	Agriculture /Rural	Agriculture	Rural	

Nipomo CSD reported 2,700 AFY in 2008 and 2,370 AFY in 2010 (NCSD existing demand based on 2010 UWMP)
Rural Water Company reported 900 AFY in 2008 and 880 AFY in 2009
Woodlands Mutual Water Company reported 540 AFY in 2008 and 810 AFY in 2009
ConocoPhillips reported 1,100 AFY in 2008 and 1,200 AFY in 2009
Agriculture reported 4,300 AFY in 2008 and 3,800 AFY in 2009
Rural residential reported 1,700 AFY in 2008 and 1,700 AFY in 2009

19. The golf course receives all of the WWTP's recycled water effluent for irrigation use (2009 - Range: 59,000-134,000 gpd, average flow: 78,000 gpd; permitted 120,000 gpd as a monthly average)
20. Ten percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand, except for Grover Beach, which assumed 20% additional reduction.
21. Groundwater basins outside the NCMA.
22. Includes Low Impact Development/Rainwater Harvesting.
23. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
24. Mean daily flow values from stream gauging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
25. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.
26. Potential use of recycled water.
27. Nipomo CSD 2010 Urban Water Management Plan.

4.8.13.3 Huasna Valley WPA 8

The Huasna Valley Groundwater Basin is the only defined groundwater basin in this WPA. There are no urban water users or large population centers in this WPA. All pumping is for rural residential and agricultural purposes by overlying users. There is no existing estimate of safe basin yield or hydrologic budget items. Therefore, it is uncertain whether a water supply deficit exists or not in this WPA.

Constraints on water availability in the Huasna Valley Groundwater Basin include physical limitations. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers. Water availability in the sandstone and fractured rock can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

4.8.13.3.1 *Water Management Strategies*

Although there are no urban users in this WPA, and it is uncertain whether a supply deficit exists, the rural and agricultural users are encouraged to implement conservation measures to reduce demands. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and off stream storage.

Table 4.61 Huasna Valley WPA 8 Water Management Strategies				
	Urban	**Agriculture**	**Rural**	**Environmental**
Demand				
Existing Demand (AFY)	0	1,550	90	
Forecast Demand (AFY)	0	2,060-2,820	360-450	
Supply				
Huasna Valley Basin (AFY)(1)	0	Uncertain	Uncertain	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	(2)	(2)	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)(5)				25,020
Unimpaired Mean Annual Discharge(AFY)(6)				34,220
Water Supply Versus Demand Balance	**0**	**Uncertain(3)**	**Uncertain(3)**	**Uncertain(7)**
Water Management Strategies and Potential for Implementation				
Further Conservation		**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project				
Land Use Management(4)		Moderate	Moderate	
Recycled Water				

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Table 4.61 Huasna Valley WPA 8 Water Management Strategies

	Urban	Agriculture	Rural	Environmental
Optimize Use of State Water Project				
Groundwater Banking/Recharge				
Groundwater Supply Sources				
Salinas Reservoir Expansion/Exchange				
Desalination				
Lopez Lake Expansion/Exchange				
New Off Stream Storage		Moderate		
Nipomo Supplemental Water Project				
Precipitation Enhancement				
New On Stream Storage				

Notes:
1. There is no existing estimate of basin safe yield or hydrologic budget items.
2. Diversions do not distinguish type of use. Potentially 48 AFY could be diverted for use to either agriculture or rural residential.
3. It is uncertain whether an agricultural or rural supply deficit exists. There is no estimate for the basin yield. Future studies should invest the resources to quantify the safe basin yield and to determine which groundwater basins are used by the agricultural and rural water users.
4. Includes Low Impact Development/Rainwater Harvesting.
5. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
6. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
7. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.8.13.4 Cuyama Valley WPA 9

The Cuyama Valley Groundwater Basin is the only defined groundwater basin in this WPA. There are no urban water users or large population centers in this WPA. All pumping is for rural residential, agricultural purposes, and oil field operators. This basin includes portions within unincorporated San Luis Obispo County, Santa Barbara County, Kern County, and Ventura County. Perennial yield for the entire basin has been estimated at 10,000 AFY. There is no separate yield estimate for the San Luis Obispo County portion of the basin, but the agricultural demands in San Luis Obispo County exceed the perennial yield.

Constraints on water availability in the Cuyama Valley Groundwater Basin are primarily physical limitations. The County of San Luis Obispo Planning Department has determined that the basin is currently at a Level III severity rating (resource capacity has been met or exceeded) due to historical groundwater level declines and resulting groundwater storage losses.

In 1980, the Cuyama Valley Groundwater Basin was identified by the California Department of Water Resources as one of the eleven basins in “critical condition of overdraft”. Although the groundwater basin is experiencing serious hydrologic impacts due to unsustainable groundwater pumping practices, a groundwater management plan for the basin does not yet exist. However, Santa Barbara County has been leading efforts recently to better understand the condition of this basin, and the District recently coordinated with that agency on jointly funding a new stream gauge.

4.8.13.4.1 *Water Management Strategies*

Although there are no urban users in this WPA, it is certain that a supply deficit exists. Rural users represent an insignificant demand compared to agriculture. Agricultural users are encouraged to implement conservation measures to reduce demands. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and off stream storage.

The four counties that overlie the basin are coordinating on a groundwater management plan.

Table 4.62 Cuyama Valley WPA 9 Water Management Strategies				
	Urban	**Agriculture**	**Rural**	**Environmental[4]**
Demand				
Existing Demand (AFY)	0	28,870[5]	10	
Forecast Demand (AFY)	0	25,320-32,410	80-100	
Supply				
Cuyama Valley Basin (AFY)[1]	0	10,000[1]	10,000[1]	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)				Uncertain
Unimpaired Mean Annual Discharge(AFY)				Uncertain
Water Supply Versus Demand Balance	**0**	**Deficit[2]**	**Deficit[2]**	**Uncertain**
Water Management Strategies and Potential for Implementation				
Further Conservation		**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project				
Land Use Management[3]		Moderate	Moderate	
Recycled Water				

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Table 4.62 Cuyama Valley WPA 9 Water Management Strategies

	Urban	Agriculture	Rural	Environmental[4]
Optimize Use of State Water Project				
Groundwater Banking/Recharge				
Groundwater Supply Sources				
Salinas Reservoir Expansion/ Exchange				
Desalination				
Lopez Lake Expansion/Exchange				
New Off Stream Storage		Moderate		
Nipomo Supplemental Water Project				
Precipitation Enhancement				
New On Stream Storage				

Notes:

1. Demands include demands in the San Luis Obispo County portion of the basin and the remaining water planning area. Perennial yield for the entire basin has been estimated between 9,000 and 13,000 AFY. Recent work reported a perennial yield on the order of 10,000 AFY. 22 percent of basin is in San Luis Obispo County. Remainder of the basin resides in Santa Barbara, Kern, and Ventura County. There is no separate yield estimate for the San Luis Obispo County portion.
2. The County Planning Department has determined that the Cuyama Valley Basin is currently at a Level III severity rating. In 1980, the basin was identified by the California Department of Water Resources as being in "critical condition of overdraft." Although the groundwater basin is experiencing serious hydrologic impacts due to unsustainable groundwater pumping practices, a groundwater management plan for the basin does not exist.
3. Includes Low Impact Development/Rainwater Harvesting.
4. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.
5. Agricultural demands estimated for San Luis Obispo County only, not the other three counties.

4.8.14 Inland Sub-Region

4.8.14.1 Carrizo Plain WPA 10

The Carrizo Plain Groundwater Basin is the only defined groundwater basin in this WPA. There are no urban water users or large population centers in this WPA. There is one small public water system serving the local school. All other pumping in the basin is for agricultural and residential purposes by overlying users. There are two proposed solar farms that will located within this WPA (Topaz Farms 550-MW; SunPower 250-MW).

The estimated rural demand for the Carrizo Plain, WPA 10, is 210 AFY and future demand estimate range from 9,610 to 12,740. The majority of existing rural parcels identified in WPA 10 are classified as developed rural lands. According to existing zoning, it is possible that Carrizo Plain could have extensive residential development. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors.

Constraints on water availability in the basin include physical limitations and water quality issues. The low safe yield estimate of this basin relative to its large size and the high TDS concentrations in areas (e.g., Soda Lake) suggest that water availability in the region is limited.

4.8.14.1.1 *Water Management Strategies*

All pumping is for rural residential and agricultural purposes by overlying users (there are no urban users in this WPA). Based on recent estimates of safe basin yield, it is unlikely that a supply deficit exists. Rural and agricultural users are encouraged to implement conservation measures to reduce demands. Water quality issues may force overlying users to explore other groundwater supplies. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development, rainwater harvesting), off stream storage, and desalination to reduce TDS concentrations.

Table 4.63 Carrizo Plain WPA 10 Water Management Strategies					
	Urban	**Solar Power[1]**	**Agriculture**	**Rural**	**Environmental[8]**
Demand					
Existing Demand (AFY)	0	0	800	210	
Forecast Demand (AFY)	0	13.8	680-890	9,610-12,740[2]	
Supply					
Carrizo Plain Basin (AFY)[3]	0	0	800	210	
Other Groundwater Supply Sources (AFY)	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	[4]	[4]	
Total Supply (AFY)	**0**	**Uncertain[1]**	**800**	**210**	
Environmental Water Demand					
Environmental Water Demand (AFY)					Uncertain
Unimpaired Mean Annual Discharge(AFY)					Uncertain
Water Supply Versus Demand Balance	**0**	**Uncertain[1][5]**	**Uncertain[5]**	**Uncertain[5]**	**Uncertain**
Water Management Strategies and Potential for Implementation					
Further Conservation		Moderate	**Greater**	**Greater**	

Table 4.63 Carrizo Plain WPA 10 Water Management Strategies

	Urban	Solar Power[(1)]	Agriculture	Rural	Environmental[(8)]
Unsubscribed Nacimiento Water Project					
Land Use Management[(7)]		Moderate	Moderate	Moderate	
Recycled Water					
Optimize Use of State Water Project					
Groundwater Banking/Recharge					
Groundwater Supply Sources		**Greater**	**Greater**	**Greater**	
Salinas Reservoir Expansion/ Exchange					
Desalination		**Greater[(6)]**	Moderate[(6)]	Moderate[(6)]	
Lopez Lake Expansion/Exchange					
New Off Stream Storage			Moderate		
Nipomo Supplemental Water Project					
Precipitation Enhancement					
New On Stream Storage					

Notes:
1. Potential demands from two identified future solar power projects (Topaz Solar Farm and Sun Power-California Valley Solar Ranch), which have yet to be approved.
2. Carrizo Plain rural demand projections are based on existing zoning, which includes the potential for extensive California Valley development.

Table 4.63 Carrizo Plain WPA 10 Water Management Strategies

	Urban	Solar Power(1)	Agriculture	Rural	Environmental(8)

The actual development may be much lower than the range shown due to water quality and other considerations.

3. The safe yield was estimated at 8,000 - 11,000 AFY.
4. Diversions do not distinguish type of use. Potentially 81 AFY could be diverted for use by either agriculture or rural residential.
5. A safe yield of 8,000 - 11,000 AFY has been identified via the Solar Project EIRs. However, future efforts should seek to refine the safe yield analysis and rural demand estimate in order to make a supported determination.
6. Treatment to reduce TDS concentrations in groundwater, reverse osmosis is proposed.
7. Includes Low Impact Development/Rainwater Harvesting.
8. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.8.14.2 Rafael/Big Spring WPA 11

The Rafael Valley and Big Spring Valley Groundwater Basins are the only defined groundwater basin in this WPA. There are no urban water users or large population centers in this WPA. All pumping is for minimal rural residential and agricultural purposes by overlying users. There are no existing estimates of safe basin yield or hydrologic budget items. Therefore, it is uncertain but unlikely that an existing agricultural or rural supply deficit exists since the existing demands are minor. It is possible that future demands could exceed the basins' safe yield, but without adequate information, this cannot be determined.

Constraints on water availability in these basins are primarily physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. The alluvial aquifers also overlie and recharge the underlying consolidated rock formations. Water availability in the consolidated rock fractures is highly variable, depending on the local structure, available storage capacity, and access to a source of recharge.

4.8.14.2.1 *Water Management Strategies*

Although there are no urban users in this WPA, and it is uncertain but unlikely that a supply deficit exists, the rural and agricultural users are encouraged to implement conservation measures to reduce demands. If future supply deficits occur, then the overlying water users could tap into fractured rock aquifers or other non-basin sources. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and off stream storage.

Table 4.64 Rafael/Big Spring WPA 11 Water Management Strategies				
	Urban	**Agriculture**	**Rural**	**Environmental[6]**
Demand				
Existing Demand (AFY)	0	Minimal	Minimal	
Forecast Demand (AFY)	0	0	470-620	
Supply				
Rafael Valley Basin (AFY)[1]	0	Uncertain[2]	Uncertain[2]	
Big Spring Area Basin[1]	0	Uncertain[2]	Uncertain[2]	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	[3]	[3]	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)				Uncertain
Unimpaired Mean Annual Discharge(AFY)				Uncertain
Water Supply Versus Demand Balance	**0**	**Uncertain [4]**	**Uncertain [4]**	**Uncertain**
Water Management Strategies and Potential for Implementation				
Further Conservation		**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project				
Land Use Management[5]		Moderate	Moderate	

Table 4.64 Rafael/Big Spring WPA 11 Water Management Strategies

	Urban	Agriculture	Rural	Environmental[6]
Recycled Water				
Optimize Use of State Water Project				
Groundwater Banking/Recharge				
Groundwater Supply Sources		**Greater**	**Greater**	
Salinas Reservoir Expansion/ Exchange				
Desalination				
Lopez Lake Expansion/Exchange				
New Off Stream Storage		Moderate		
Nipomo Supplemental Water Project				
Precipitation Enhancement				
New On Stream Storage				

Notes:
1. There is no information describing the basin yield.
2. It is uncertain which basins are used and the quantity of water pumped from each basin. Future studies should invest the resources to quantify the location and use of each basin.
3. Diversions do not distinguish type of use. Potentially 59 AFY could be diverted for use to either agriculture or rural residential.
4. It is uncertain but unlikely that an existing agricultural or rural supply deficit exists. The yield from the two basins serving this water planning area is unknown, but the existing demands are minor. It is possible that future demands could exceed the basins safe yield, but without adequate information, this cannot be confirmed. Future studies should invest the resources to quantify the safe basin yield and to determine which groundwater basins are used by the agricultural and rural water users.
5. Includes Low Impact Development/Rainwater Harvesting.
6. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.8.14.3 Santa Margarita WPA 12

Groundwater is the primary water supply source for this WPA. The primary constraint on water availability in the Santa Margarita Valley Groundwater Basin, which supplies CSA 23 and Santa Margarita Ranch, are physical limitations. Although the alluvial aquifer is considered to be highly productive, it is shallow in vertical extent (i.e., 50 feet thick) and therefore highly susceptible to seasonal fluctuations in groundwater levels of about 15 to 20 feet. During dry water years or extended droughts, well yields may be significantly reduced due to low groundwater levels (Todd, 2004). Recharge in the shallow alluvial deposits for a particular year is dependent on rainfall, creek stream flows, and precipitation runoff generated in the four watersheds. Wells developed in the Santa Margarita Formation generally do not have sufficient yields to reliably replace the wells in the alluvial aquifer. Hydrographs of deep wells in the area indicate that groundwater levels have been trending downward at least over the last decade (Hopkins, 2006).

The Rinconada Valley and Pozo Valley Groundwater Basins constraints on water availability are physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. The alluvial aquifers overlie and recharge the underlying rock formations. Water availability in the consolidated rock fractures is generally limited and highly variable, depending on the local structure, available storage capacity, and access to a source of recharge.

4.8.14.3.1 *Water Management Strategies*

The community of Santa Margarita, which is served by CSA 23, is the primary population center and urban water user in this WPA. Santa Margarita Ranch is primarily an agricultural operation, but residential subdivisions are proposed on the Ranch. Due to the supply limitations of the Santa Margarita Valley Groundwater Basin, an alternative supply is necessary to meet anticipated future demands and to provide a reliability supply. Water conservation measures should be implemented to the fullest extent possible. Mandatory or emergency conservation would be used to off-set the need for additional or reliability supply in CSA 23, but not to support growth. In addition to conservation, three water management strategies are likely the most feasible options to consider for CSA 23 and/or Santa Margarita Ranch's future water supply:

- Unsubscribed Nacimiento Water Project
- Recycled water
- Optimized use of State Project Water

Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and groundwater supply sources.

Table 4.65 Santa Margarita WPA 12 Water Management Strategies					
	CSA 23	**Santa Margarita Ranch**	**Agriculture**	**Rural**	**Environmental**
Demand					
Existing Demand (AFY)	164	1,621	1,770	240	
Forecast Demand (AFY)	173-192[7]	5,301-5,890[7]	1,720-2,680	450-520	
Supply					
Santa Margarita Valley Basin (AFY)[1]	164	1,621	Uncertain[2]	Uncertain[2]	
Rinconada Valley Basin[3]	0	0	Uncertain[2]	Uncertain[2]	
Pozo Valley Basin[4]	0	0	Uncertain[2]	Uncertain[2]	
Other Groundwater Supply Sources (AFY)	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	22	[5]	[5]	
Total Supply (AFY)	**164**	**1,643**	**Uncertain**	**Uncertain**	
Environmental Water Demand					
Environmental Water Demand (AFY)[9]					32,850
Unimpaired Mean Annual Discharge(AFY)[10]					46,630
Water Supply Versus Demand Balance	**Supply Deficit[1][6]**	**Supply Deficit[1][6]**	**Uncertain [2][6]**	**Uncertain [2][6]**	**Uncertain[11]**

Table 4.65 Santa Margarita WPA 12 Water Management Strategies					
	CSA 23	**Santa Margarita Ranch**	**Agriculture**	**Rural**	**Environmental**
Water Management Strategies and Potential for Implementation					
Further Conservation	**Greater**	**Greater**	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project	Moderate	**Greater**			
Land Use Management[8]	Moderate	Moderate	Moderate	Moderate	
Recycled Water		**Greater**			
Optimize Use of State Water Project	**Greater**				
Groundwater Banking/Recharge					
Groundwater Supply Sources	Moderate	Moderate			
Salinas Reservoir Expansion/ Exchange					
Desalination					
Lopez Lake Expansion/Exchange					
New Off Stream Storage			Moderate		
Nipomo Supplemental Water Project					
Precipitation Enhancement					

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Table 4.65 Santa Margarita WPA 12 Water Management Strategies

	CSA 23	Santa Margarita Ranch	Agriculture	Rural	Environmental
New On Stream Storage					

Notes:
1. No comprehensive studies to determine the perennial yield are known to exist. However, some reports indicate an average annual yield may range between 400 to 600 AFY.
2. It is uncertain which basins are used and the quantity of water pumped from each basin. Future studies should invest the resources to quantify the location of and use within each basin.
3. There is no information describing the basin yield.
4. The safe available storage has been reported to be 1,000 AFY. There is insufficient information to characterize water availability.
5. Diversions do not distinguish type of use. Potentially 417 AFY could be diverted for use to either agriculture or rural residential.
6. It is likely that a deficit exists because the combined existing urban, agricultural, and rural demands exceed the Santa Margarita Valley and Pozo Valley basin yield/storage.
7. Ten percent water conservation assumed for the low end of the forecast build-out demand.
8. Includes Low Impact Development/Rainwater Harvesting
9. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
10. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
11. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.8.14.4 Atascadero/Templeton WPA 13

Groundwater from the Atascadero Groundwater Sub-basin is the primary water supply source for this WPA, but recycled water and recently the Nacimiento Water Project (NWP) are also sources of supply. The Atascadero Groundwater Sub-basin includes the City of Atascadero and the communities of Templeton and Garden Farms. Although the City of Paso Robles is not located within WPA 13, its Thunderbird wellfield is located within WPA 13 and extracts water from the Salinas River Underflow. The sub-basin contains three aquifer groups with distinctly different hydraulic characteristics: 1) Alluvium along the floodplain of the Salinas River, 2) Paso Robles Formation deposits directly underlying the Salinas River alluvium, and 3) Paso Robles Formation deposits along the east side of the sub-basin that are not directly connected to the younger alluvium.

Primary constraints on water availability in the sub-basin include water rights and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium (Salinas River Underflow) have been fully appropriated by the State Water Resources Control Board (State Board) and no plans exist to increase these rights beyond the current allocations. Full appropriation implies that no additional rights to the Salinas River flows are being issued by the State Board at this time nor is any additional pumping for existing rights being granted. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation.

In terms of physical limitations, Todd (2009) estimated the gross groundwater pumping in the sub-basin during 2006 to be 15,545 AF, which is 95 percent of the sub-basin perennial yield of 16,400 AFY. Ongoing studies may revise the estimated pumping from the sub-basin. According to Fugro (2010), whereas total groundwater in storage in the main part of the Paso Robles Groundwater Basin is predominantly in the Paso Robles Formation, the Salinas River alluvium in the Atascadero Groundwater Sub-basin accounts for a significant percentage of the total groundwater storage in the sub-basin. Pumping from the alluvium should be accounted for separately from pumping from the Paso Robles Formation. Furthermore, Fugro opined that pumping in excess of the perennial yield in the sub-basin may not necessarily be reflected by decreasing groundwater levels in the Paso Robles Formation since significant pumping occurs in the alluvium.

An additional source of water for Templeton CSD comes from their re-use program with disposal of treated wastewater effluent from the Meadowbrook WWTP percolation ponds. This program allows the Templeton CSD to percolate treated effluent into the groundwater basin/Salinas River Underflow and subsequently extract the same amount of water 28 months later.

The Templeton CSD is also under contract to receive 250 AFY from the NWP. The Atascadero MWC is a major partner of the Nacimiento Water Project, having contracted for a 2,000 AFY allotment of this future supply. For Atascadero MWC, the water will be used to

recharge the groundwater basin in the vicinity of the deep wells that pump from the Atascadero Groundwater Sub-basin.

4.8.14.4.1 *Water Management Strategies*

The Atascadero MWC maintains sufficient supply to meet existing and anticipated future demands, and to provide a reliability supply. The other urban users are either at their supply limit or could experience a future deficit.

As mentioned above, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation.

The estimated gross groundwater pumping from urban, rural and agricultural users in the Atascadero Groundwater Sub-basin is approaching the perennial yield. Therefore, the sub-basin is not considered a significant source of additional future supply.

Due to the supply limitations of the Atascadero Groundwater Sub-basin, an alternative supply is necessary to meet future demands and to provide a reliability supply. Water conservation measures should be implemented to the fullest extent possible. Atascadero MWC has successfully implemented a number of conservation measures and continues to aggressively promote water conservation. Mandatory or emergency conservation would be used to off-set the need for additional or reliability supply, not to support growth.

Future water supply for the Templeton CSD will likely come from the Nacimiento Water Project (NWP). Templeton CSD could increase its NWP allotment. Templeton CSD would percolate raw water from the NWP into the Salinas River Underflow, in a similar manner that they percolate effluent from the Meadowbrook WWTP percolation ponds (Selby Pond site). In addition, the Templeton CSD might divert additional wastewater flows to the Meadowbrook WWTP (which currently flow to the City of Paso Robles WWTP), which will allow them to increase percolation into and extraction from the Salinas River Underflow by as much as 343 AFY.

Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and groundwater banking/recharge.

Table 4.66 Atascadero/Templeton WPA 13 Water Management Strategies							
	Garden Farms CWD	**Templeton CSD**	**Atascadero MWC**	**Paso Robles[16]**	**Agriculture**	**Rural**	**Environmental**
Demand							
Existing Demand (AFY)	48-93	1,682	6,565	4,063	10,620	1,480	
Forecast Demand (AFY)	48-93	2,034-2,260[15]	6,840-7,600[15]	3,728	9,740-14,600	1,810-1,930	
Supply							
Atascadero Groundwater Sub-basin (AFY)[13]							
Paso Robles Formation (AFY)[1]	48-93	1,050[2]	3,193	Included with Salinas River Underflow	[3]	[3]	
Salinas River Underflow (AFY)[1]	0	500[4]	3,372[5]	4,063/ 3,728[16]	745[6]	0	
Recycled Water (AFY)[7]	0	132/475	0	0	0	0	
Other Groundwater Supply Sources (AFY)	0	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	0	[8]	[8]	
Nacimiento Water Project (AFY)[9]	0	250	2,000	0	0	0	
Total Supply (AFY)	**43-93**	**1,932**	**8,565**	**4,063**	**Uncertain**	**Uncertain**	

Table 4.66 Atascadero/Templeton WPA 13 Water Management Strategies							
	Garden Farms CWD	**Templeton CSD**	**Atascadero MWC**	**Paso Robles[16]**	**Agriculture**	**Rural**	**Environmental**
Environmental Water Demand							
Environmental Water Demand (AFY)[18]							41,010
Unimpaired Mean Annual Discharge(AFY)[19]							74,090
Water Supply Versus Demand Balance	**At Supply Limit**	**Possible Future Deficit[1][10]**	**Adequate Supply[1][14]**	**At Supply Limit[1]**	**Uncertain[11]**	**Uncertain[11]**	**Uncertain[20]**
Water Management Strategies and Potential for Implementation							
Further Conservation	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project		**Greater**	**Greater**	**Greater**	Moderate[12]		
Land Use Management[17]	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Recycled Water		**343 AFY**	Moderate	**Greater**	**Greater**		
Optimize Use of State Water Project							
Groundwater Banking/Recharge		Moderate	Moderate	Moderate	Moderate	Moderate	
Groundwater Supply Sources		**500 AFY**	Moderate		**Greater**	**Greater**	

Table 4.66 Atascadero/Templeton WPA 13 Water Management Strategies

	Garden Farms CWD	Templeton CSD	Atascadero MWC	Paso Robles[16]	Agriculture	Rural	Environmental
Salinas Reservoir Expansion/ Exchange							
Desalination							
Lopez Lake Expansion/Exchange							
New Off Stream Storage					Moderate		
Nipomo Supplemental Water Project							
Precipitation Enhancement							
New On Stream Storage							

Notes:

1. The perennial yield was estimated to be 16,400 AFY. Extractions from the Sub-basin occur primarily from the Salinas River Underflow and deeper formations. Depending on the estimated use for the Agricultural and Rural sectors, future hydrology and whether additional Nacimiento supplies are utilized, Sub-basin studies are indicating that the perennial yield may be exceeded in the future.
2. Nine of Templeton CSD's wells extract groundwater from the Atascadero Groundwater Sub-basin.
3. It is assumed that the majority of water supply for rural users and about 13 percent of the supply for agricultural users comes from the Sub-basin.
4. Templeton CSD is permitted to extract 500 AFY from the Salinas River Underflow between October 1 and April 1.
5. Atascadero MWC rights to 3,372 AFY from Salinas River underflow.
6. SWRCB records indicate that 745 AFY could be diverted from the Salinas River (direct diversion or underflow). It is assumed that the entire amount is used for agriculture.
7. Percolation of treated wastewater effluent into the Salinas River underflow and extraction of the same amount 28 months later. Currently about 132 AFY is percolated and extracted. This could increase to 475 AFY in the future.
8. Diversions do not distinguish type of use. Potentially 1,431 AFY could be diverted for use to either agriculture or rural residential. Diversions were not analyzed as to whether they are within or outside the Sub-basin.
9. Nacimiento Water Project is scheduled to go online in 2010.
10. If the Templeton Sub-Unit can not supply at least 1,000 AFY, then a water supply deficit could occur. A combination of conservation and an increase in treated wastewater effluent percolation could supply the projected increase in demands.

Table 4.66 Atascadero/Templeton WPA 13 Water Management Strategies

	Garden Farms CWD	Templeton CSD	Atascadero MWC	Paso Robles[16]	Agriculture	Rural	Environmental

11. It is uncertain whether the sources of supply outside the Sub-basin in addition to the Sub-basin itself are sufficient to sustain the level of demand (also see note 1).
12. Via an institutional/physical mechanism for direct deliveries or groundwater banking.
13. The agencies, County, District, and local land owners intend to actively and cooperatively manage the Paso Robles Groundwater Basin (which includes the Sub-basin) via the development of a Groundwater Management Plan.
14. Although the demand and supply balance indicates a surplus for Atascadero MWC, if the Sub-basin is not managed appropriately, Atascadero MWC could be impacted.
15. Ten (10) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand.
16. Paso Robles discussed in Water Planning Area 14 but included here because Paso Robles wells extract water from this water planning area. For the purposes of this analysis, it was assumed that half (4,063 AFY) of the existing demand of 8,126 AFY was extracted from the Salinas River Underflow via the Thunderbird Well Field in WPA 13. Paso Robles is permitted to extract 4,600 AFY from Salinas River Underflow, but not all is pumped from the WPA 13. Part is extracted from within WPA 14. At build-out, it was assumed that Paso Robles would extract half (3,728 AFY) of its total future groundwater supply of 7,456 AFY from the Atascadero Sub-basin.
17. Includes Low Impact Development/Rainwater Harvesting.
18. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
19. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
20. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.

4.8.14.5 Salinas/Estrella WPA 14

Groundwater from the Paso Robles Groundwater Basin is the primary water supply source for this WPA. The Nacimiento Water Project (NWP) is also a source of supply, and the community of Shandon maintains a State Water Project allocation. This WPA and the Paso Robles Basin include the City of Paso Robles and the communities of San Miguel, Camp Roberts and Shandon, rural and agricultural users, and a number of small commercial and community water systems. Groundwater in the basin is found in alluvium (Salinas River Underflow) and in the Paso Robles Formation.

Primary constraints on water availability in the basin include water rights, water quality, and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Board and no future plans exist to increase these rights beyond the current allocations. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation. In terms of physical limitations, Todd (2009) estimated the total groundwater pumping in the basin during 2006 to be 88,154 AF, which is 90 percent of the basin perennial yield of 97,700 AFY.

Portions of the Paso Robles Groundwater Basin have experienced significant water level declines over the past 15 to 20 years (Fugro 2002, Fugro 2005, Todd 2007, Todd 2009). The area of particular concern is the Estrella subarea, primarily from the eastern part of the City of Paso Robles, eastward along the Highway 46 corridor to Whitley Gardens. The “area of concern” has been the subject of additional investigation by the San Luis Obispo County Planning Department and the focus of a Resource Capacity Study that was completed 2011.

The City of Paso Robles is under contract to receive 4,000 AFY from the NWP. The City is progressing with its plans for a water treatment plant to treat NWP deliveries. Current projections indicate that the first phase of the plant will treat approximately 2,000 AFY by year 2015/16, during the peak water demand season. Future phases of the treatment plant are projected to be completed in 2021/22.

4.8.14.5.1 *Water Management Strategies*

The District, City of Paso Robles, CSA 16 – Shandon, San Miguel CSD, and approximately 20 landowners have organized as the Paso Robles Imperiled Overlying Rights (PRIOR) group to participate in the Paso Robles Groundwater Basin Agreement (Agreement). Key elements of the Agreement are a clear acknowledgement that the Paso Robles Groundwater Basin is not in overdraft now, and that the parties will not take court action to establish any priority of groundwater rights over another party as long as the Agreement is in effect. In addition, the parties agree to participate in a meaningful way in groundwater management activities, and to develop a plan for monitoring groundwater conditions in the groundwater basin.

As mentioned above, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation. Also, the estimated gross groundwater pumping from urban, rural and agricultural users in the groundwater basin is approaching its perennial yield. Therefore, the groundwater basin is not considered a significant source of additional future supply.

The City of Paso Robles has an option of increasing its allotment of the Nacimiento Water Project from 4,000 AFY to 8,000 AFY as demand increases. The NWP is also an option for San Miguel CSD, but they do not currently subscribe to this supply.

Another supply alternative being pursued by Paso Robles is the use of recycled wastewater. The City owns its own wastewater treatment plant, which currently provides secondary treatment. Several alternatives have been studied to upgrade treatment to the tertiary level, and it is assumed that one of these alternatives will eventually be pursued. The City is considering the use of up to 1,000 AFY of recycled water to serve future demands. The primary issue with recycled water is that there is little urban demand (e.g. landscape irrigation or industrial users) within the city limits. Another option is to deliver recycled water to wineries or other agricultural users.

Water conservation measures should be implemented to the fullest extent possible. The City of Paso Robles has implemented a number of permanent mandatory water conservation measures that are in force throughout the water service area. These measures have reduced demand from 13 mgd to 10 mgd. Mandatory or emergency conservation by the city would be used to off-set the need for additional or reliability supply, not to support growth.

CSA 16-Shandon has an allocation of 100 AFY of State Water Project water (but no drought buffer), but has not developed this supply due to high cost.

Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting), recycled water, groundwater banking/recharge, and groundwater supply.

Table 4.67 Salinas/Estrella WPA 14 Water Management Strategies

	San Miguel CSD	Camp Roberts	Paso Robles	CSA 16 (Shandon)	Agriculture	Rural	Environmental (14)
Demand							
Existing Demand (AFY)	235	190	4,063(11)	147	67,610	3,590	
Forecast Demand (AFY)	466-582(10)	190	8,422-9,772(10(11))	271-1,100(15)	60,740-86,820	5,570-6,230	
Supply							
Paso Robles Groundwater Basin (AFY)(1)							
Paso Robles Formation and/or alluvium (AFY)	235	190	2,856(2)	147	(3)	(3)	
Salinas River Underflow (AFY)	0	0	537/872(4)	0	738(5)	0	
Other Groundwater Supply Sources (AFY)	0	0	0	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	0	0	0	(6)	(6)	
State Water Project (AFY)	0	0	0	66(7)	0	0	
Nacimiento Water Project (AFY)(8)	0	0	4,000	0	0	0	
Total Supply (AFY)	**235**	**190**	**7,728**	**213**	**Uncertain**	**Uncertain**	
Environmental Water Demand							

Table 4.67 Salinas/Estrella WPA 14 Water Management Strategies							
	San Miguel CSD	**Camp Roberts**	**Paso Robles**	**CSA 16 (Shandon)**	**Agriculture**	**Rural**	**Environmental (14)**
Environmental Water Demand (AFY)							Uncertain
Unimpaired Mean Annual Discharge(AFY)							Uncertain
Water Supply Versus Demand Balance	**Future Deficit(12)**	**At Supply Limit(12)**	**Future Deficit(12)**	**Future Deficit(12)**	**Future Deficit(9)(12)**	**Future Deficit(9)(12)**	Uncertain
Water Management Strategies and Potential for Implementation							
Further Conservation	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project	Moderate		**4,000 AFY**		Moderate(16)	Moderate(16)	
Land Use Management(13)	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	
Recycled Water	Moderate		**944-1,000 AFY**	Moderate	Moderate(16)		
Optimize Use of State Water Project				**Greater**	Moderate(16)	Moderate(16)	
Groundwater Banking/Recharge	Moderate		Moderate	Moderate	Moderate	Moderate	
Groundwater Supply Sources	**Greater**			Moderate	**Greater**	**Greater**	
Salinas Reservoir Expansion/ Exchange							

Table 4.67 Salinas/Estrella WPA 14 Water Management Strategies

	San Miguel CSD	Camp Roberts	Paso Robles	CSA 16 (Shandon)	Agriculture	Rural	Environmental (14)
Desalination							
Lopez Lake Expansion/Exchange							
New Off Stream Storage					Moderate		
Nipomo Supplemental Water Project							
Precipitation Enhancement							
New On Stream Storage							

Notes:

1. The perennial yield was estimated to be 97,700 AFY (includes 16,400 AFY from the Atascadero Groundwater Sub-basin). Previous studies estimated that the total groundwater pumping in the basin during 2006, including Monterey County demands, was 88,154 acre-feet, which is 90 percent of the basin perennial yield.
2. The deeper formations of the Paso Robles Groundwater Basin contributes approximately 2,856 AFY to the City of Paso Robles supply. The City plans to maintain this extraction rate in the future.
3. It is assumed that the majority of water supply for agriculture and rural users comes from the Paso Robles Groundwater Basin.
4. The City of Paso Robles is permitted to extract up to 8 cfs (3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31). For the purposes of this analysis, it was assumed that half (4,063 AFY) of the existing demand of 8,126 AFY was extracted from the Salinas River Underflow via the Thunderbird Wellfied in WPA 13. The remaining permitted extraction of 537 AFY was pumped from wells within WPA 14. At build-out, it was assumed that Paso Robles would extract 3,728 AFY from the Salinas River Underflow in WPA 13 and the remaining 872 AFY would be extracted from Salinas River Underflow within WPA 14.
5. SWRCB records indicate that 738 AFY could be diverted from the Salinas River (direct diversion or underflow). It is assumed that the entire amount is used for agriculture.
6. Diversions do not distinguish type of use. Potentially 4,884 AFY could be diverted for use to either agriculture or rural residential.
7. CSA 16 has an allocation of 100 AFY of State Water Project (but no drought buffer), but has not developed this supply due to high cost. State Water Project average allocation assumed 66 percent of contract water service amount, which equate to 66 AFY.
8. Nacimiento Water Project is scheduled to go online in 2010.
9. It is possible that a future supply deficit will exist because the forecast agricultural and rural demands, excluding demands in the Monterey County portion of the basin, exceed the basin yield. It is uncertain how much of the rural and agricultural demand is supplied by sources outside the basin.

Table 4.67 Salinas/Estrella WPA 14 Water Management Strategies

	San Miguel CSD	Camp Roberts	Paso Robles	CSA 16 (Shandon)	Agriculture	Rural	Environmental (14)

10. Twenty (20) percent additional water conservation (beyond what has already been accomplished) assumed for the low end of the forecast build-out demand for San Miguel and 10% for Paso Robles.
11. Existing demand was 8,126 AFY, but half (4,063 AFY) was supplied by the Thunderbird Wellfied in WPA 13. Therefore, the net demand in WPA 14 is 4,063. Of this 4,063 AFY demand, 537 AFY was supplied by Salinas River Underflow and 2,856 AFY was supplied by the deeper Paso Robles Formation aquifer. The build-out forecast demand ranged between 12,150 and 13,500 AFY. This analysis assumed that 3,728 AFY would be supplied by the Thunderbird Wellfield in WPA 13. Therefore, the net forecast demand is 8,422 to 9,772 AFY.
12. Including demand in the Monterey County portion of the basin, and depending on the estimated use for the Agricultural and Rural sectors and future hydrology, basin studies are indicating that the perennial yield may be exceeded in the future. The agencies, County, District, and local land owners intend to actively and cooperatively manage the groundwater basin via the development of a Groundwater Management Plan.
13. Includes Low Impact Development/Rainwater Harvesting.
14. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.
15. Upper end of the range reflects demand projected in accordance with the draft Shandon Community Plan should it be approved by the Board of Supervisors in the future.
16. Via an institutional/physical mechanism for direct deliveries or groundwater banking.

4.8.14.6 Cholame WPA 15

The Cholame Valley Groundwater Basin is the only defined groundwater basin in this WPA. There are no urban water users or large population centers in this WPA, but there are some small public water systems. All other pumping is for residential and agricultural purposes by overlying users. No information is available describing basin yield. Therefore, it is uncertain whether a water supply deficit exists or not.

4.8.14.6.1 *Water Management Strategies*

Although there are no urban users in this WPA, and it is uncertain whether a supply deficit exists, the rural and agricultural users are encouraged to implement conservation measures to reduce demands. If supply deficits do exist, then other undefined groundwater basins could serve as a potential supply. Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting) and off stream storage.

pw://Carollo/Documents/Client/CA/SLOCFCWCD/8257A00/Deliverables/MWR 04

Table 4.68 Cholame WPA 15 Water Management Strategies				
	Urban	**Agriculture**	**Rural**	**Environmental[4]**
Demand				
Existing Demand (AFY)	0	80	10	
Forecast Demand (AFY)	0	60-80	150-190	
Supply				
Cholame Valley Basin (AFY)[1]	0	80	10	
Other Groundwater Supply Sources (AFY)	0	Uncertain	Uncertain	
SWRCB Water Diversions (AFY)	0	41	0	
Total Supply (AFY)	**0**	**Uncertain**	**Uncertain**	
Environmental Water Demand				
Environmental Water Demand (AFY)				Uncertain
Unimpaired Mean Annual Discharge(AFY)				Uncertain
Water Supply Versus Demand Balance	**0**	**Uncertain[2]**	**Uncertain[2]**	**Uncertain**
Water Management Strategies and Potential for Implementation				
Further Conservation		**Greater**	**Greater**	
Unsubscribed Nacimiento Water Project				
Land Use Management[3]		Moderate	Moderate	

pw://Carollo/Documents/Client/CA/SLOCFCWCD/8257A00/Deliverables/MWR 04

Table 4.68 Cholame WPA 15 Water Management Strategies

	Urban	Agriculture	Rural	Environmental[4]
Recycled Water				
Optimize Use of State Water Project				
Groundwater Banking/Recharge				
Groundwater Supply Sources		**Greater**	**Greater**	
Salinas Reservoir Expansion/Exchange				
Desalination				
Lopez Lake Expansion/Exchange				
New Off Stream Storage		Moderate		
Nipomo Supplemental Water Project				
Precipitation Enhancement				
New On Stream Storage				

Notes:
1. There is no information describing the basin yield.
2. It is uncertain but unlikely that an existing agricultural or rural supply deficit exists. The yield from the basin serving this water planning area is unknown, but the existing demands are minor. It is possible that future demands could exceed the basins safe yield, but without adequate information, this cannot be confirmed. Future studies should invest the resources to quantify the safe basin yield.
3. Includes Low Impact Development/Rainwater Harvesting.
4. The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

4.8.14.7 Nacimiento WPA 16

In this WPA, Lake Nacimiento is the primary source of supply for urban users and there are no significant groundwater basins. The Nacimiento Water Company serves the community of Oak Shores, which is on the banks of Nacimiento Lake. The water supply allocation for Oak Shores is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area.

The Heritage Ranch CSD has only one water supply source, the Gallery Well, which is fed via three horizontal wells located in the Nacimiento River bed just downstream of the Nacimiento Dam. Heritage Ranch CSD serves a residential community along the southern shores of Lake Nacimiento. Typically, the Nacimiento River is fed year-round by the release of water through the upper and/or lower outlet works in the dam at Lake Nacimiento. If no water is released from the lake, the Heritage Ranch CSD will not have a water supply. The 1,100 AFY of allocation of Nacimiento Reservoir water designated for use in Heritage Ranch's service area is part of the 1,750 AFY reserved for County residents in the Lake Nacimiento area.

4.8.14.7.1 *Water Management Strategies*

The 1,100 AFY Nacimiento Reservoir allocation for Heritage Ranch CSD is sufficient to provide water for anticipated build-out demand, but the configuration of the delivery system leaves the Heritage Ranch CSD vulnerable to a termination in water supply in an extreme drought. Alternative sources are under consideration, including taking water directly from the lake and connecting to the Nacimiento Water Project pipeline. A possible tie-in with Camp Roberts was explored, but was found to be infeasible due to the reluctance of Camp Roberts to consider any emergency water supply options.

Additional water conservation measures provide some opportunity to further reduce water demands. Further mandatory or emergency conservation would be used to off-set an emergency or reliability supply, but not to support growth. Conservation also does not provide the alternative supply needed during times of extreme drought.

Other water management strategies that received a moderate designation for implementation potential include land use management (includes low impact development and rainwater harvesting), groundwater supply sources (undefined groundwater basins), and new off-stream storage.

Table 4.69 Nacimiento WPA 16 Water Management Strategies

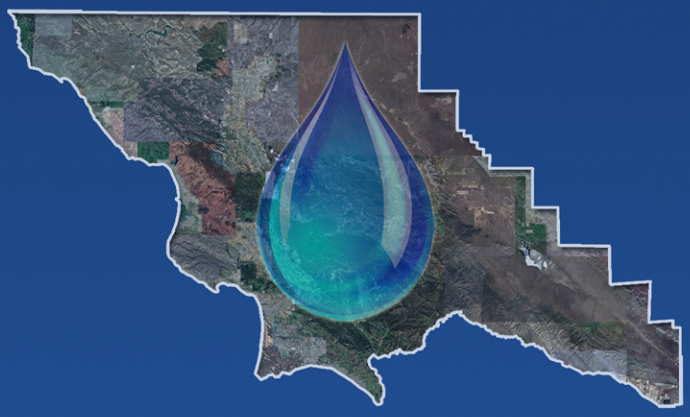
	Nacimiento Water Company[1]	Heritage Ranch CSD	Agriculture	Rural	Environmental
Demand					
Existing Demand (AFY)	[2]	619	3,860	280	
Forecast Demand (AFY)	[2]	935-1,039	4,740-7,120	730-880	
Supply					
Lake Nacimiento (AFY)	600[3]	1,100[3]	0	0	
Other Groundwater Supply Sources (AFY)	0	0	Uncertain[4]	Uncertain[4]	
SWRCB Water Diversions (AFY)	0	0	[5]	[5]	
Total Supply (AFY)	**600**	**1,100**	**Uncertain**	**Uncertain**	
Environmental Water Demand					
Environmental Water Demand (AFY)[9][11]					108,390
Unimpaired Mean Annual Discharge (AFY)[10][11]					251,120
Water Supply Versus Demand Balance	**Uncertain**	**481 surplus/61 surplus (possible deficit[6])**	**Uncertain[7]**	**Uncertain[7]**	**Uncertain[12]**

Table 4.69 Nacimiento WPA 16 Water Management Strategies					
	Nacimiento Water Company[1]	**Heritage Ranch CSD**	**Agriculture**	**Rural**	**Environmental**
Water Management Strategies and Potential for Implementation					
Unsubscribed Nacimiento Water Project					
Further Conservation	**Greater**	**Greater**	**Greater**	**Greater**	
Land Use Management[8]	Moderate	Moderate	Moderate	Moderate	
Recycled Water					
Optimize Use of State Water Project					
Groundwater Banking/Recharge					
Groundwater Supply Sources		Moderate			
Salinas Reservoir Exchange/ Expansion					
Desalination					
Lopez Lake Exchange/Expansion					
New Off Stream Storage		Moderate	Moderate		
Nipomo Supplemental Water Project					

Table 4.69 Nacimiento WPA 16 Water Management Strategies

	Nacimiento Water Company[(1)]	Heritage Ranch CSD	Agriculture	Rural	Environmental
Precipitation Enhancement					
New On Stream Storage					

Notes:
1. Nacimiento Water Company serves the community of Oak Shores.
2. No estimate available for the current or forecast demand.
3. The 600 AFY water supply allocation for Oak Shores is part of the 1,750 AFY reserved for San Luis Obispo County residents in the Lake Nacimiento area. Heritage Ranch CSD's allocation of Lake Nacimiento is 1,100 AFY.
4. Groundwater supply sources around Lake Nacimiento are the typical sources of supply for wells that serve agricultural and rural users. There is no information describing the yield for these groundwater supplies.
5. Diversions do not distinguish type of use. Potentially 1,048 AFY could be diverted for use to either agriculture or rural residential.
6. The Lake Nacimiento supply allocation is sufficient to meet forecast demands. However, if the lake's water level drops below the dam outlet (has never occurred but came to within two feet of the lower outlet works in October 1989), then Heritage Ranch CSD could lose its water supply.
7. It is uncertain whether an agricultural or rural supply deficit exists. Future studies should invest the resources to determine the basin yield for these groundwater supplies and the uses for the creek/river diversions. It is possible that the combined supplies from groundwater and creek diversions are sufficient to meet the agricultural and rural demands.
8. Includes Low Impact Development/Rainwater Harvesting.
9. Environmental Water Demand is defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species.
10. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.
11. Estimates for environmental water demand include the watershed area for the Nacimiento River Index-station (162 square miles); though the Index-station is within WPA 16, most of the watershed area is not.
12. The Environmental Water Demand and Unimpaired Mean Annual Discharge are calculated for the entire water planning area and not for individual streams.



San Luis Obispo County
Master Water Report
Volume III of III

MAY 2012

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US-LT Resource Conservation District

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

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San Luis Obispo County Flood Control and Water Conservation District

SAN LUIS OBISPO COUNTY MASTER WATER REPORT

May 2012

Expires on 3/31/13

Expires on 6/30/12

Expires on 12/31/13

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San Luis Obispo County Flood Control and Water Conservation District

SAN LUIS OBISPO COUNTY MASTER WATER REPORT

TABLE OF CONTENTS

Page No.

EXECUTIVE SUMMARY - MASTER WATER REPORT

ES.1 SUMMARY OF REPORT CHAPTERS....1
ES.2 MASTER WATER REPORT RECOMMENDATIONS....2
ES.2.1 District's Highest Priorities....2
ES.2.2 Water Management Strategies for Specific Users....3

CHAPTER 1 - INTRODUCTION

1.1 SCOPE OF MASTER WATER REPORT....1-1
1.2 GOALS AND OBJECTIVES....1-3
1.2.1 Ensure Stakeholder Input/Participation....1-3
1.2.2 Create a Framework for Maintaining the Master Water Report....1-3
1.2.3 Accurately Present Current and Future Supply/Demand....1-5
1.2.4 Ensure Support for Agricultural Demand Analysis....1-5
1.2.5 Ensure Support for Environmental Water Demand Characterization....1-5
1.2.6 Respect Autonomy of Individual Jurisdictions while Recognizing Differences/Conflicts....1-5
1.2.7 Present Analysis of Options, Conclusions and Recommendations....1-6
1.2.8 Ensure Compatibility with Other Documents....1-6
1.3 LIMITATIONS OF THE MASTER WATER REPORT....1-6
1.3.1 Technical Challenges with Demand Assessment....1-7
1.3.1.1 Urban Water Demand....1-7
1.3.1.2 Rural Water Demand....1-7
1.3.1.3 Agricultural Water Demand....1-7
1.3.1.4 Definition of "Build-Out" Demand....1-8
1.3.1.5 Conservation and Irrigation Efficiencies....1-8
1.3.2 Use of Available Technical Documents....1-8
1.3.3 Groundwater Basin Yield Estimates....1-9
1.3.4 Use of Management Area Reports....1-9
1.3.5 Technical Challenges with Environmental Assessment....1-9
1.4 DEFINITION OF KEY TERMS....1-10

CHAPTER 2 - PART I: BACKGROUND ON WATER RESOURCE MANAGEMENT EFFORT

2.1 WATER PLANNING AREAS....2-1
2.1.1 North Coast Sub-Region....2-1
2.1.1.1 San Simeon WPA 1....2-1
2.1.1.2 Cambria WPA 2....2-3
2.1.1.3 Cayucos WPA 3....2-3
2.1.1.4 Morro Bay WPA 4....2-3
2.1.1.5 Los Osos WPA 5....2-3
2.1.2 South Coast Sub-Region....2-3
2.1.2.1 San Luis Obispo/Avila WPA 6....2-5

2.1.2.2 South Coast WPA 7 2-5
2.1.2.3 Huasna Valley WPA 8 2-5
2.1.2.4 Cuyama Valley WPA 9 2-5
2.1.3 Inland Sub-Region 2-6
2.1.3.1 Carrizo Plain WPA 10 2-6
2.1.3.2 Rafael/Big Spring WPA 11 2-6
2.1.3.3 Santa Margarita WPA 12 2-6
2.1.3.4 Atascadero/Templeton WPA 13 2-6
2.1.3.5 Salinas/Estrella WPA 14 2-8
2.1.3.6 Cholame WPA 15 2-8
2.1.3.7 Nacimiento WPA 16 2-8
2.2 WATER SERVICE COOPERATIVE AGREEMENTS AND OTHER COORDINATION EFFORTS 2-8
2.2.1 WPA 3, 4 and 6 – Whale Rock Reservoir Water Supply 2-9
2.2.2 WPA 4 - City of Morro Bay/Whale Rock Commission 2-9
2.2.3 WPA 4 - Chorro Valley Water System 2-9
2.2.4 WPA 4, 6, 7, and 14 -State Water Project 2-10
2.2.5 WPA 5 – Los Osos Interlocutory Stipulated Judgment (ISJ) 2-10
2.2.6 WPA 6 – Santa Margarita Lake/Salinas Reservoir 2-11
2.2.7 WPA 7 – Groundwater Management Agreement/Northern Cities Management Area 2-11
2.2.8 WPA 6 and 7 – Lopez Lake Zone 3 Water Supply Project 2-12
2.2.9 WPA 7 – Nipomo Mesa Management Area 2-12
2.2.10 WPA 4, 6, 13 and 14 - Nacimiento Water Supply Project 2-13
2.2.11 WPA 13 and 14 - Paso Robles Groundwater Management Plan and Basin Agreement 2-14
2.2.11.1 Paso Robles Groundwater Management Plan 2-14
2.2.11.2 Paso Robles Groundwater Basin Agreement 2-14
2.3 RESOURCE AGENCIES 2-15
2.3.1 State Agencies 2-15
2.3.2 Agricultural Organizations 2-16
2.3.3 Environmental Organizations 2-16

CHAPTER 3 - PART II: AVAILABLE DATA

3.1 OBJECTIVES 3-1
3.2 DATA COLLECTION EFFORTS OR PROGRAMS 3-1
3.2.1 Groundwater 3-1
3.2.1.1 Water levels 3-1
3.2.1.2 Geologic Data and Well Logs 3-5
3.2.2 Stream Flow 3-7
3.2.2.1 District Stream Measuring Program 3-10
3.2.2.2 U.S. Geological Survey Stream Gauging Program 3-10
3.2.3 Precipitation 3-12
3.2.3.1 District Recording Rain Gauge Program 3-12
3.2.3.2 District Volunteer Precipitation Program 3-16
3.2.3.3 District ALERT Rain Gauge Program 3-16
3.2.3.4 California Irrigation Management Information System (CIMIS) Stations 3-18
3.2.3.5 National Oceanic and Atmospheric Administration / National Weather Service Cooperative Observer Network 3-20
3.2.3.6 Citizen Weather Observer Program (CWOP) 3-20

3.2.3.7 Remote Automated Weather Station (RAWS) Gauges 3-23
3.2.3.8 NWS Automated Surface Observing System (ASOS) Stations .. 3-25
3.2.3.9 National Weather Service Precipitation Forecasts (QPF) 3-27
3.2.4 Reservoirs 3-30
3.2.4.1 Local Reservoir Operations 3-30
3.2.5 Water Quality 3-30
3.2.5.1 Sampling Surface Water 3-30
3.2.5.2 Streams, Lakes & Reservoirs 3-33
3.2.5.3 Estuaries and Wetlands 3-36
3.2.5.4 Oceans and Beaches 3-37
3.2.5.5 Sampling Groundwater 3-42
3.2.6 Unimpaired Runoff 3-47
3.2.7 Land Use 3-48
3.2.7.1 Urban Land Uses 3-48
3.2.7.2 Rural Land Uses 3-48
3.2.7.3 Agricultural Land Uses 3-49
3.2.8 Population 3-49
3.2.9 Water System Production and Consumption 3-49
3.2.9.1 Water Quantity/Quality 3-49
3.2.9.2 Water Use Data 3-50
3.2.10 Agriculture 3-50

CHAPTER 4 - PART II: WATER RESOURCE ANALYSIS

4.1 OBJECTIVES 4-1
4.2 OVERVIEW OF GROUNDWATER RESOURCES 4-1
4.2.1 North Coast Sub-Region 4-1
4.2.1.1 San Simeon Water Planning Area (WPA) 1 4-2
4.2.1.2 Cambria WPA 2 4-5
4.2.1.3 Cayucos WPA 3 4-9
4.2.1.4 Morro Bay WPA 4 4-14
4.2.1.5 Chorro Valley Groundwater Basin 4-16
4.2.1.6 Los Osos WPA 5 4-17
4.2.2 South Coast Sub-Region 4-19
4.2.2.1 San Luis Obispo/Avila WPA 6 4-20
4.2.2.2 South Coast WPA 7 4-24
4.2.2.3 Huasna Valley WPA 8 4-33
4.2.2.4 Cuyama Valley WPA 9 4-36
4.2.3 Inland Sub-Region 4-38
4.2.3.1 Carrizo Plain WPA 10 4-39
4.2.3.2 Rafael Valley/Big Spring WPA 11 4-42
4.2.3.3 Santa Margarita WPA 12 4-44
4.2.3.4 Atascadero/Templeton WPA 13 4-47
4.2.3.5 Salinas/Estrella WPA 14 4-50
4.2.3.6 Cholame Valley WPA 15 4-53
4.2.3.7 Nacimiento WPA 16 4-55
4.2.4 OTHER GROUNDWATER SUPPLY SOURCES 4-55
4.3 OVERVIEW OF SURFACE WATER SUPPLY 4-57
4.3.1 State Water Project 4-57
4.3.2 Nacimiento Water Project 4-61
4.3.3 Whale Rock Reservoir 4-62
4.3.3.1 Operating Agreements 4-63

4.3.4 Lopez Lake/Reservoir 4-65
4.3.5 Santa Margarita Lake/Salinas Reservoir 4-66
4.3.6 Chorro Reservoir 4-66
4.4 OTHER WATER SUPPLY SOURCES 4-67
4.4.1 Twitchell Reservoir 4-67
4.4.2 Desalination 4-67
4.4.2.1 Morro Bay Desalination 4-67
4.4.2.2 Other Desalination Projects 4-68
4.4.3 Water Recycling 4-68
4.5 WATER CONSERVATION PROGRAMS 4-69
4.5.1.1 Urban Water Management Plans: 4-70
4.5.1.2 Partners in Water Conservation: 4-71
4.5.1.3 Agricultural Water Conservation Programs 4-71
4.5.1.4 California Urban Water Conservation Council 4-72
4.5.1.5 Decentralized Water Supply Opportunities 4-73
4.6 WATER SUPPLY, DEMAND, WATER QUALITY 4-74
4.6.1 Total Water Demand 4-75
4.6.1.1 Method for Calculating Demand 4-75
4.6.1.2 Assumptions for Calculating Demand 4-75
4.6.1.3 Total Demand by WPA 4-76
4.6.2 Urban Water Demand 4-82
4.6.2.1 Sources of Information 4-82
4.6.2.2 Method/Assumptions: Existing Use and Future Water Demand 4-82
4.6.2.3 Urban Water Demand by WPA 4-82
4.6.3 Agricultural Water Demand 4-82
4.6.3.1 Sources of Information 4-83
4.6.3.2 Method/Assumptions: Existing Agricultural Demand 4-84
4.6.3.3 Method/Assumptions: Future Agricultural Demand 4-86
4.6.3.4 Agricultural Water Demand by WPA 4-88
4.6.4 Rural Water Demand 4-89
4.6.4.1 Sources of Information 4-89
4.6.4.2 Method/Assumptions: Existing and Future Rural Demand 4-89
4.6.4.3 Rural Water Demand by WPA 4-90
4.6.5 Environmental Demand 4-91
4.6.5.1 Definitions 4-91
4.6.5.2 Method/Assumptions: Environmental Demand 4-91
4.6.6 North Coast Sub-Region 4-92
4.6.6.1 San Simeon WPA 1 4-92
4.6.6.2 Cambria WPA 2 4-97
4.6.6.3 Cayucos WPA 3 4-101
4.6.6.4 Morro Bay WPA 4 4-105
4.6.6.5 Los Osos WPA 5 4-113
4.6.7 South Coast Sub-Region 4-118
4.6.7.1 San Luis Obispo/Avila WPA 6 4-118
4.6.7.2 South Coast WPA 7 4-128
4.6.7.3 Huasna Valley WPA 8 4-154
4.6.7.4 Urban Users 4-154
4.6.7.5 Cuyama Valley WPA 9 4-156
4.6.8 Inland Sub-Region 4-158
4.6.8.1 Carrizo Plain WPA 10 4-158

4.6.8.2 Rafael/Big Spring WPA 11 4-162
4.6.8.3 Santa Margarita WPA 12 4-164
4.6.8.4 Atascadero/Templeton WPA 13 4-169
4.6.8.5 Salinas/Estrella WPA 14 4-180
4.6.8.6 Cholame WPA 15 4-189
4.6.8.7 Nacimiento WPA 16 4-191
4.7 ANALYSIS CRITERIA 4-195
4.7.1 Criteria for Declaring a Water Resource Shortfall 4-195
4.7.2 Criteria for Evaluating and Ranking Water Resource Management Strategies (management, projects, programs, policies) 4-195
4.7.3 Water Management Strategies 4-196
4.7.3.1 Conservation Programs 4-196
4.7.3.2 Optimize Use of the Nacimiento Water Project (NWP) 4-197
4.7.3.3 Land Use Management 4-197
4.7.3.4 Recycled Water 4-198
4.7.3.5 Optimize Use of State Water Project (SWP) 4-198
4.7.3.6 Groundwater Banking/Recharge 4-198
4.7.3.7 Groundwater Supply Sources 4-199
4.7.3.8 Salinas Reservoir Expansion/Exchanges 4-199
4.7.3.9 Desalination 4-200
4.7.3.10 Lopez Lake Expansion/Exchanges 4-200
4.7.3.11 New Off-stream Storage 4-200
4.7.3.12 Nipomo Supplemental Water Project Optimization 4-201
4.7.3.13 Precipitation Enhancement 4-201
4.7.3.14 New On-stream Storage 4-201
4.7.4 Conservation Programs 4-202
4.7.4.1 Agriculture Conservation 4-202
4.7.4.2 Urban and Rural Water Use Efficiency 4-205
4.7.4.3 Economic Incentives 4-208
4.7.5 Optimize Use of the Nacimiento Water Project 4-211
4.7.5.1 Potential Benefits of Optimizing the use of the Nacimiento Water Project 4-211
4.7.5.2 Potential Cost of Optimizing the use of the Nacimiento Water Project 4-212
4.7.5.3 Major Issues Facing Optimization of the use of the Nacimiento Water Project 4-212
4.7.5.4 Recommendations to Optimize the use of the Nacimiento Water Project 4-213
4.7.6 Land Use Management 4-214
4.7.6.1 Potential Benefits from Land Use Management 4-216
4.7.6.2 Potential Cost of Land Use Management 4-217
4.7.6.3 Major Issues Facing Land Use Management 4-218
4.7.6.4 Recommendations for Implementation of Land Use Management 4-221
4.7.7 Recycled Water 4-223
4.7.7.1 Potential Benefits of Water Recycling 4-224
4.7.7.2 Potential Cost of Recycled Water 4-225
4.7.7.3 Major Issues Facing Water Recycling 4-225
4.7.7.4 Central Coast RWQCB Conditional Waiver 4-227
4.7.7.5 Recommendations to Increase Recycled Water Use 4-227
4.7.8 Optimize Use of State Water Project 4-228

4.7.8.1 Potential Benefits of Optimizing the Use of the State Water Project 4-229
4.7.8.2 Potential Cost of Optimizing the use of the State Water Project 4-229
4.7.8.3 Major Issues Facing Optimization of the use of the State Water Project 4-230
4.7.8.4 Recommendations to Optimize the use of the State Water Project 4-231
4.7.9 Groundwater Banking/Recharge 4-232
4.7.9.1 Potential Benefits of Groundwater Banking/ Recharge 4-233
4.7.9.2 Potential Costs of Groundwater Banking/Recharge 4-234
4.7.9.3 Major Issues Facing Groundwater Banking/ Recharge 4-234
4.7.9.4 Recommendations to Improve Groundwater Banking/ Recharge 4-235
4.7.10 Groundwater Supply Sources 4-236
4.7.10.1 Potential Benefits of using Groundwater Supply Sources 4-236
4.7.10.2 Potential Cost of Groundwater Supply Sources 4-236
4.7.10.3 Major Issues Facing the use of Groundwater Supply Sources . 4-236
4.7.10.4 Recommendations to Facilitate Management of Groundwater Supply Sources 4-236
4.7.11 Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.1 Potential Benefits of Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.2 Potential Cost of Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.3 Major Issues Facing Salinas Reservoir Expansion/Exchanges 4-237
4.7.11.4 Recommendations to Facilitate Salinas Reservoir Expansion/Exchanges 4-238
4.7.12 Desalination 4-238
4.7.13 Lopez Lake Expansion/Exchanges 4-243
4.7.13.1 Potential Benefits of Lopez Reservoir Expansion/Exchanges .. 4-243
4.7.13.2 Potential Cost of Lopez Reservoir Expansion/Exchanges 4-243
4.7.13.3 Major Issues Facing Lopez Reservoir Expansion/Exchanges .. 4-244
4.7.13.4 Recommendations to Facilitate Lopez Reservoir Expansion/Exchanges 4-244
4.7.14 New Off Stream Storage 4-244
4.7.14.1 Potential Benefits of Off Stream Surface Storage 4-245
4.7.14.2 Potential Costs of New Off Stream Surface Storage 4-245
4.7.14.3 Major Issues Facing New Off Stream Storage 4-245
4.7.14.4 Recommendation to Increase Off Stream Surface Storage Benefits 4-246
4.7.15 Nipomo Supplemental Water Project 4-246
4.7.15.1 Potential Benefits of the Nipomo Supplemental Water Project. 4-247
4.7.15.2 Potential Cost of the Nipomo Supplemental Water Project 4-247
4.7.15.3 Major Issues Facing the Nipomo Supplemental Water Project. 4-247
4.7.15.4 Recommendations to Facilitate the Nipomo Supplemental Water Project 4-247
4.7.16 Precipitation Enhancement 4-247
4.7.16.1 Potential Benefits from Precipitation Enhancement 4-248
4.7.16.2 Potential Cost of Precipitation Enhancement 4-249
4.7.16.3 Major Issues for Precipitation Enhancement 4-249
4.7.16.4 Recommendations to Increase Precipitation Enhancement 4-250
4.7.17 New On Stream Storage 4-250

4.7.17.1 Potential Benefits of On Stream Surface Storage 4-251
4.7.17.2 Potential Costs of New On Stream Surface Storage 4-252
4.7.17.3 Major Issues Facing New On Stream Storage 4-252
4.7.17.4 Recommendation to Increase On Stream Surface Storage Benefits 4-253
4.8 SUMMARY ANALYSIS, CONCLUSIONS, RECOMMENDATIONS 4-253
4.8.1 Contingency Plan or Reliability Supply 4-253
4.8.1.1 City of San Luis Obispo Reliability Reserve 4-254
4.8.1.2 Reliability Supply Goal 4-256
4.8.2 Regional Water Supply Strategies 4-256
4.8.2.1 Interagency Arrangements and Exchanges 4-257
4.8.2.2 Chorro Valley Water System Connection to NWP 4-257
4.8.2.3 Santa Margarita Lake/Salinas Reservoir Release 4-257
4.8.3 Water Conservation 4-258
4.8.4 Groundwater Evaluations 4-258
4.8.5 Groundwater Banking/Recharge 4-259
4.8.6 Streamline Institutional Agreements 4-259
4.8.7 Improving Agriculture Demand Estimate 4-259
4.8.8 Improving Rural Demand Estimate 4-260
4.8.9 Agricultural and Rural Users Water Management Strategies 4-261
4.8.10 Environmental Water Management Strategy 4-262
4.8.11 Unsubscribed State Water Project 4-263
4.8.12 North Coast Sub-Region 4-263
4.8.12.1 San Simeon WPA 1 4-263
4.8.12.2 Cambria WPA 2 4-269
4.8.12.3 Cayucos WPA 3 4-272
4.8.12.4 Morro Bay WPA 4 4-275
4.8.12.5 Los Osos WPA 5 4-281
4.8.13 South Coast Sub-Region 4-285
4.8.13.1 San Luis Obispo/Avila WPA 6 4-285
4.8.13.2 South Coast WPA 7 4-290
4.8.13.3 Huasna Valley WPA 8 4-299
4.8.13.4 Cuyama Valley WPA 9 4-302
4.8.14 Inland Sub-Region 4-305
4.8.14.1 Carrizo Plain WPA 10 4-305
4.8.14.2 Rafael/Big Spring WPA 11 4-309
4.8.14.3 Santa Margarita WPA 12 4-312
4.8.14.4 Atascadero/Templeton WPA 13 4-316
4.8.14.5 Salinas/Estrella WPA 14 4-322
4.8.14.6 Cholame WPA 15 4-328
4.8.14.7 Nacimiento WPA 16 4-331

CHAPTER 5 - PART III: WATER RESOURCE PLANNING

5.1 RELATIONSHIP OF MASTER WATER REPORT TO EXISTING DOCUMENTS 5-1
5.1.1 California Water Plan 5-1
5.1.1.1 Description 5-1
5.1.1.2 Relationship to Master Water Report (MWR) 5-1
5.1.1.3 Timing 5-1
5.1.1.4 Issues Related to Coordination 5-2
5.1.1.5 Recommendations for Coordination 5-2

5.1.2 Integrated Regional Water Management Plan 5-2
5.1.2.1 Description 5-2
5.1.2.2 Relationship to MWR 5-2
5.1.2.3 Timing 5-3
5.1.2.4 Issues related to coordination 5-3
5.1.2.5 Recommendations for coordination 5-3
5.1.3 County General Plan 5-3
5.1.3.1 Conservation and Open Space Element 5-3
5.1.3.2 Land Use and Circulation Element 5-5
5.1.3.3 County Resource Management System 5-6
5.1.3.4 Agricultural Element 5-8
5.1.4 Sub-Regional/Area Water Resources Planning Documents 5-9
5.1.4.1 Description 5-9
5.1.4.2 Relationship to MWR 5-10
5.1.4.3 Timing 5-10
5.1.4.4 Issues related to coordination 5-10
5.1.4.5 Recommendations for Coordination 5-10
5.2 RECOMMENDATIONS FOR FUTURE MASTER WATER REPORT UPDATES 5-11
5.2.1 Areas of Improvement and Data Limitations 5-11

APPENDIX A TM No. 1, Description of Available Data, prepared by Wallace Group in association with Carollo Engineers, Fugro West Inc., and Cleath-Harris Geologists

APPENDIX B TM No. 2, Water Supply Inventory and Assessment – Description of Water Resources, prepared by Wallace Group in association with Fugro West Inc., and Cleath-Harris Geologists

APPENDIX C TM No. 3, Water Supply Inventory and Assessment – Water Supply, Demand, and Water Quality

APPENDIX D Memorandum, San Luis Obispo County Water Demand Analysis Methodology and Results, ESA, January 11, 2010

LIST OF TABLES

Table ES 1: Master Water Report Recommendations 4

Table 1.1 WRAC Workshops 1-4

Table 4.1 North Coast Sub-Region Groundwater Basins 4-2
Table 4.2 South Coast Sub-Region Groundwater Basins 4-20
Table 4.3 Inland Sub-Region Groundwater Basins 4-39
Table 4.4 Other Developed Supply Sources 4-55
Table 4.5 State Water Project Water Service Amount 4-60
Table 4.6 Nacimiento Water Project Participants 4-62
Table 4.7 Whale Rock Reservoir Allocations 4-63
Table 4.8 Whale Rock Downstream Entitlements 4-64
Table 4.9 Lopez Lake Allocations 4-65
Table 4.10 Existing and Forecast Water Demand for All Water Planning Areas(1) 4-77

Table 4.11 Urban Water Demand by Water Planning Area [(1)] 4-83
Table 4.12 Crop Group and Commodities Used for the Agricultural Demand Analysis 4-84
Table 4.13 Existing Irrigated Crop Acreage Determined in GIS[(1)] 4-85
Table 4.14 Forecast Irrigated Crop Acreage Determined in GIS[(1)] 4-87
Table 4.15 Agricultural Water Demand by Water Planning Area [(1)] 4-88
Table 4.16 Existing and Future Rural Water Demand 4-90
Table 4.17 Mean Annual Discharge and Environmental Water Demand Estimates 4-93
Table 4.18 San Simeon CSD Demand and Supply 4-95
Table 4.19 San Simeon WPA 1 Demand and Supply 4-96
Table 4.20 Cambria CSD Demand and Supply 4-98
Table 4.21 Cambria WPA 2 Demand and Supply 4-100
Table 4.22 Cayucos Area Water Organization Demand and Supply 4-102
Table 4.23 Cayucos WPA 3 Supply and Demand 4-104
Table 4.24 Morro Bay and Chorro Valley Water Demand and Supply 4-108
Table 4.25 Morro Bay WPA 4 Supply and Demand 4-112
Table 4.26 Population Estimates and Connection Data for Urban Water Purveyors (2002 Los Osos CSD WMP, 2009 RMS, and GSWC Files) 4-114
Table 4.27 Los Osos Area Demand and Supply 4-115
Table 4.28 Los Osos WPA 5 Demand and Supply 4-117
Table 4.29 San Luis Obispo (includes County airport), Cal Poly San Luis Obispo, Avila Beach CSD, Avila Valley MWC, San Miguelito MWC, CSA 12, and Port San Luis Demand and Supply 4-123
Table 4.30 San Luis Obispo/Avila WPA 6 Demand and Supply 4-126
Table 4.31 Golden State Water Company (Edna Valley) Demand and Supply 4-128
Table 4.32 Pismo Beach, Arroyo Grande, Grover Beach, and Oceano CSD Demand and Supply 4-134
Table 4.33 Northern Cities Management Area Rural Water Use Demand 4-136
Table 4.34 Northern Cities Management Area Demand and Supply 4-138
Table 4.35 Golden State Water Company, Nipomo CSD, Rural Water Company, and Conoco-Phillips Demand and Supply 4-144
Table 4.36 Agricultural Demand 4-146
Table 4.37 NMMA Demand and Supply 4-147
Table 4.38 South Coast WPA 7 Demand and Supply 4-150
Table 4.39 Huasna Valley WPA 8 Demand and Supply 4-155
Table 4.40 Cuyama Valley WPA 9 Demand and Supply 4-157
Table 4.41 Solar Farm Demand Estimates 4-159
Table 4.42 Carrizo Plain WPA 10 Demand and Supply 4-161
Table 4.43 Rafael/Big Spring WPA 11 Demand and Supply 4-163
Table 4.44 Santa Margarita Area Demand and Supply 4-166
Table 4.45 Santa Margarita WPA 12 Demand and Supply 4-167
Table 4.46 Summary of Existing Water Supplies for Templeton CSD 4-170
Table 4.47 Garden Farms CWD, Templeton CSD, Atascadero MWC, and Paso Robles Demand and Supply 4-174
Table 4.48 Atascadero/Templeton WPA 13 Demand and Supply 4-177
Table 4.49 San Miguel CSD, Camp Roberts, CSA 16, and Paso Robles Demand and Supply 4-184
Table 4.50 Salinas/Estrella WPA 14 Demand and Supply 4-187
Table 4.51 Cholame WPA 15 Demand and Supply 4-190
Table 4.52 Nacimiento WPA 16 Demand and Supply 4-193
Table 4.53 City of San Luis Obispo 2010 Water Supply Accounting 4-255

Table 4.54 San Simeon WPA 1 Water Management Strategies 4-266
Table 4.55 Cambria WPA 2 Water Management Strategies 4-270
Table 4.56 Cayucos WPA 3 Water Management Strategies 4-273
Table 4.57 Morro Bay WPA 4 Water Management Strategies 4-278
Table 4.58 Los Osos WPA 5 Water Management Strategies 4-282
Table 4.59 San Luis Obispo/Avila WPA 6 Water Management Strategies 4-287
Table 4.60 South Coast WPA 7 Water Management Strategies 4-294
Table 4.61 Huasna Valley WPA 8 Water Management Strategies 4-300
Table 4.62 Cuyama Valley WPA 9 Water Management Strategies 4-303
Table 4.63 Carrizo Plain WPA 10 Water Management Strategies 4-306
Table 4.64 Rafael/Big Spring WPA 11 Water Management Strategies 4-310
Table 4.65 Santa Margarita WPA 12 Water Management Strategies 4-313
Table 4.66 Atascadero/Templeton WPA 13 Water Management Strategies 4-318
Table 4.67 Salinas/Estrella WPA 14 Water Management Strategies 4-324
Table 4.68 Cholame WPA 15 Water Management Strategies 4-329
Table 4.69 Nacimiento WPA 16 Water Management Strategies 4-332

LIST OF FIGURES

Figure 1.1 Sub-Regions and Water Planning Areas 1-2

Figure 2.1 North Coast Sub-Region 2-2
Figure 2.2 South Coast Sub Region 2-4
Figure 2.3 Inland Sub-Region 2-7

Figure 3.1 Measured Regional Groundwater Wells 3-2
Figure 3.2 District Groundwater Measuring Program 3-4
Figure 3.3 U.S. Geological Survey Well Measuring Program 3-6
Figure 3.4 Streams With Current Gauge Stations 3-8
Figure 3.5 San Luis Obispo County Stream Measuring Program 3-11
Figure 3.6 USGS Stream Gauge Sites 3-13
Figure 3.7 Regional Rain Gauge Network 3-14
Figure 3.8 County Recording Rain Gauge Distribution 3-15
Figure 3.9 County Volunteer Rain Gauge Distribution 3-17
Figure 3.10 District Real-Time Rain Gauge Network 3-19
Figure 3.12 Regional COOP Stations 3-22
Figure 3.13 Citizen Weather Observer Program Gauges 3-24
Figure 3.14 Remote Automated Weather Station (RAWS) Gauges 3-26
Figure 3.15 FAA ASOS Stations 3-28
Figure 3.16 Local National Weather Service QPFs 3-29
Figure 3.17 Reservoir Locations 3-31
Figure 3.18 Central Coast Ambient Monitoring Program 3-35
Figure 3.19 SLOSEA Sites 3-38
Figure 3.20 EPA's National Coastal Assessment 3-39
Figure 3.21 County Public Health Beach Monitoring 2010 3-41
Figure 3.22 National Data Buoy Center 3-43
Figure 3.23 Historic United States Geological Survey (USGS) Water Quality Monitoring Sites 3-44
Figure 3.24 NCMA Coastal Sentry Wells 3-46

Figure 4.1 San Luis Obispo County Water Planning Area 1 4-3
Figure 4.2 San Luis Obispo County Water Planning Area 2 4-7
Figure 4.3 San Luis Obispo County Water Planning Area 3 4-11
Figure 4.4 San Luis Obispo County Water Planning Area 4 4-15
Figure 4.5 San Luis Obispo County Water Planning Area 5 4-18
Figure 4.6 San Luis Obispo County Water Planning Area 6 4-21
Figure 4.7 San Luis Obispo County Water Planning Area 7 4-25
Figure 4.8 San Luis Obispo County Water Planning Area 8 4-35
Figure 4.9 San Luis Obispo County Water Planning Area 9 4-37
Figure 4.10 San Luis Obispo County Water Planning Area 10 4-41
Figure 4.11 San Luis Obispo County Water Planning Area 11 4-43
Figure 4.12 San Luis Obispo County Water Planning Area 12 4-45
Figure 4.13 San Luis Obispo County Water Planning Area 13 4-48
Figure 4.14 San Luis Obispo County Water Planning Area 14 4-51
Figure 4.15 San Luis Obispo County Water Planning Area 15 4-54
Figure 4.16 San Luis Obispo County Water Planning Area 16 4-56
Figure 4.17 San Luis Obispo County Water Planning Areas..... 4-58

PART III: WATER RESOURCE PLANNING

5.1 RELATIONSHIP OF MASTER WATER REPORT TO EXISTING DOCUMENTS

This chapter describes the relationship between the Master Water Report and the different State, County, and local agency water related documents, programs, or policies that guide water resource management decisions. In addition, this chapter also suggests coordination efforts that should occur in future updates to the Master Water Report that would promote consistency between the documents listed below.

5.1.1 California Water Plan

5.1.1.1 Description

The California Water Plan (CWP) provides a framework for water managers, legislators, other decision makers, and the public to consider options and make decisions regarding California's water future. The CWP, which is updated every five years, presents basic data and information on California's water resources including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The CWP also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the State's water needs.

The State's goal for the CWP is to meet Water Code requirements (Sections 10004 through 10013), receive broad support among those participating in California's water planning, and be a useful document for the public, water planners throughout the state, legislators and other decision-makers.

5.1.1.2 Relationship to Master Water Report (MWR)

This Master Water Report (MWR) utilized the California Water Plan for definitions of and information on water management strategies to consider in the County. To some extent, the MWR utilized the CWP's methodology of developing a range of future demands rather than one predicted demand value.

5.1.1.3 Timing

The CWP is on a schedule to release a 2013 update in March 2014, four years after the release of the 2009 Update. Since the requirement is to complete the updates every five years, the timing for a subsequent update is unclear. This MWR will assume the State follows this pattern for release every 4 years as a conservative approach.

5.1.1.4 Issues Related to Coordination

The CWP provides an opportunity for using consistent methodologies to develop water supply and demand estimates. However, it is important to evaluate the appropriateness of utilizing methodologies in the CWP locally. Items to consider include the data available versus the data needed, willingness and resources of individual agencies and groups that manage their water resources, resources of the District and County for future MWR updates, and various local issues that often are not accounted for adequately in State-wide templates.

5.1.1.5 Recommendations for Coordination

- Determine the appropriateness of utilizing CWP methodologies in future MWR updates
- Consider the timing of CWP updates in developing a schedule for updating the MWR

5.1.2 Integrated Regional Water Management Plan

5.1.2.1 Description

In November of 2002, Proposition 50 was passed by California voters, approving Chapter 8 (Water Code 79560 to 79565) and the Integrated Regional Water Management (IRWM) Program. To participate and be eligible for water resources planning and project grant funding, water agencies were asked to form a region when their jurisdictional boundaries overlap the same or connected watersheds and/or groundwater basins, and involve appropriate stakeholders to integrate water supply, water quality, ecosystem, and flood control issues into their water resources planning and projects. Associated grant program guidelines require the development and adoption of an IRWM Plan for the region prior to applying for grant funding.

The District, in cooperation with the Water Resources Advisory Committee (WRAC), has developed an IRWM Plan for the region defined as the County boundary. The San Luis Obispo County Region's IRWM Plan integrates all of the programs, plans and projects lead by entities within the region into water supply, water quality, ecosystem preservation and restoration, groundwater monitoring and management, and flood management programs. Depending on grant program funding criteria, projects within the IRWM Plan can be submitted by the District via the grant application process to the appropriate State agency for consideration. Additional State grant programs that utilize the IRWM Program include components of Propositions 84 and 1E.

5.1.2.2 Relationship to MWR

State guidelines require certain information be included in IRWM Plans, including a description of the region, water supply and demand information, and water resources projects and programs. The MWR is incorporated into appropriate sections of the IRWM Plan in accordance with the guidelines. The IRWM Plan also contains goals and objectives

for water resources management that are utilized in the MWR for evaluating strategies to address water supply and demand discrepancies,

5.1.2.3 Timing

There is no set requirement for updating IRWM Plans. However, release of new guidelines for new grant opportunities and grant requirements can drive and/or set timelines. For example, the San Luis Obispo County Region's 2007 IRWM Plan will be updated in 2011-2012. This will be done in order to either meet current guidelines prior to the next round of grant funding, or to comply with a potential grant opportunity for 2011 that requires update of an IRWM Plan to current guidelines within 2 years of executing a grant agreement.

5.1.2.4 Issues related to coordination

Since the District is currently the lead agency in developing both the IRWM Plan and MWR in coordination with the WRAC, the main issue with coordination is limited to availability of District resources to manage both documents.

5.1.2.5 Recommendations for coordination

Via the WRAC, consider modifying the governance structure for IRWM Plan development and implementation to diversify resources for IRWM Plan development and implementation, to ensure it is a stakeholder-driven effort and to free up District resources for implementation of MWR recommendations. Incorporate climate change considerations included in future IRWM Plans into future drafts of the MWR.

5.1.3 County General Plan

California law requires every city and county in the state to prepare and adopt a comprehensive long-range General Plan for the physical development of the jurisdiction (California Government Code §65300). Each General Plan must include seven mandatory elements: land use, circulation, housing, conservation, open space, safety, and noise. General Plans may include other optional elements as desired. Any discussions of water in the General Plan must also be prepared in coordination with water suppliers (3,000 connections or more) and include any information on water supply and demand prepared pursuant to §65352.5 (CA Government Code). The following section discusses the components of the County's General Plan that are relevant to the MWR.

5.1.3.1 Conservation and Open Space Element

5.1.3.1.1 *Description*

San Luis Obispo County has an abundance of natural resources and open space features that are fundamental to our quality of life. These features include majestic natural landmarks, outstanding scenic vistas, important wildlife habitats, diverse natural communities, unique historic and cultural resources, vibrant lakes and creek corridors,

dynamic coastal and marine environments, clean air, and bountiful soils. However, the County's special character is vulnerable to development pressure that can incrementally degrade biodiversity and threaten ecologic, historic, scenic, and other natural resources.

The Conservation and Open Space Element (COSE) is a tool to protect and preserve these unique community resources. Conservation is the planned management, preservation, and wise utilization of natural resources and landscapes to ensure their availability when needed. Conservation means using efficient technologies and changing wasteful habits. Conserving, renewing, and restoring natural resources will assure their greatest ecologic, economic, or social benefit over time. This is necessary in order to enjoy scenic beauty and recreation, eliminate or minimize premature and unnecessary conversion of open space to urban uses, maintain public health and safety, and support a vital economy.

The state requires conservation elements to address water issues with regard to the conservation, development, and utilization of this resource. The COSE contains goals, policies, and policy implementation strategies to this effect for the unincorporated areas of the County.

5.1.3.1.2 *Relationship to MWR*

This MWR was developed with consideration of COSE policies, goals and implementation strategies to project supply and demand and to evaluate and recommend strategies to address discrepancies in supply and demand projections. It is anticipated that implementation of recommendations in the MWR will accomplish certain water resources policy implementation strategies in the COSE and vice versa.

5.1.3.1.3 *Timing*

The County's COSE was updated in 2010. There is no set schedule for COSE updates; however, individual policy implementation strategies are anticipated to be initiated over time.

5.1.3.1.4 *Issues related to Coordination*

Since the COSE and this MWR were developed utilizing IRWM Plan goals and objectives, the two efforts are well aligned.

5.1.3.1.5 *Recommendations for Coordination*

Coordinate between County Departments as appropriate and in conjunction with the WRAC on the implementation of MWR recommendations and COSE policy implementation strategies related to water resources.

5.1.3.2 Land Use and Circulation Element

5.1.3.2.1 *Description*

The Land Use and Circulation Element (LUCE) of the General Plan contains policies that govern the way land is used and the way people move around in the unincorporated areas of San Luis Obispo County. The LUCE update (currently underway) is a consolidation and revision of the current LUCE for the rural areas of the county. The update will focus on planning at a regional level in order to protect agriculture and other important resources, and planning for expected growth through the year 2035, including economic development and a wider range of housing opportunities.

The LUCE will confront challenges within San Luis Obispo County such as long-term water resources, increased cost of infrastructure, effects of increasing rural development, and rural growth and the effects on agriculture, as well as traffic volumes and congestion. Addressing these issues will help to assure a sustainable and growing economy.

Objectives of the LUCE include, but are not limited to:

- Consolidating 15 planning areas into fewer areas (using watersheds and groundwater basins as boundaries),
- Implementing the County's strategic growth policies and state legislation (Senate Bill 375) by shifting inappropriate rural growth potential away from rural areas and protecting agricultural and natural resources,
- Planning for growth based on sustainable resources,
- Engaging in a high level of collaboration with communities, mutual water companies, community services districts, and cities.

5.1.3.2.2 *Relationship to MWR*

Both the LUCE and the MWR contain land-use based water demand projections for the unincorporated rural and agricultural areas of the County and coordinate with appropriate water providers for water resources planning information within urban and village reserve lines. One of the major themes for the LUCE update is planning so that future growth is in keeping with resources such as water supply so that both are sustainable. The MWR also seeks to understand the effect of allowable land use on water resources.

5.1.3.2.3 *Timing*

An update to the LUCE started in January 2010 and is anticipated to be completed in August of 2012.

5.1.3.2.4 *Issues related to Coordination*

The main issues are related to timing and planning area designations. Since the LUCE is being updated after the majority of the analysis in this MWR had been completed, water

demand estimates will likely be different. While both were based on allowable land uses according to the current General Plan, the analysis for the LUCE update will be even more refined and on a parcel-specific basis. In selecting planning area designations, the MWR was free to utilize watersheds and groundwater basins, with consideration of local/sub-regional water resources-related jurisdictions, while the LUCE will likely use the Coastal Zone boundary in the formation of its planning area designations in order to address different land use requirements in the Coastal Zone versus the inland areas. Other than the Coastal Zone boundary, however, the planning area designations for the MWR and the LUCE are anticipated to be very consistent.

5.1.3.2.5 *Recommendations for Coordination*

- Utilize the land use analyses conducted for the LUCE in future MWR updates which will aid in demonstrating the effect on water resource demands between allowable land uses in the current General Plan versus land uses that are recommended based on implementation of strategic growth principles. Understanding this difference will aid the County, and potentially others, in determining effective land use based strategies to sustain water resources,
- Maintain a GIS-based system for updates to both efforts in the future.

5.1.3.3 County Resource Management System

5.1.3.3.1 *Description*

The Resource Management System (RMS) component of the General Plan focuses on collecting data in order to avoid and correct resource deficiencies with regard to six essential resources: water supply, water systems, wastewater treatment systems, schools, roads, and air quality. This information historically has been compiled in an Annual Resource Summary Report (ASR) that guides decisions about balancing development with the resources necessary to sustain such development. It focuses on collecting data, identifying resource problems, and recommending solutions. The RMS contains “triggers” to implement certain actions such as conservation or supplemental water development measures to avoid or correct resource deficiencies. These triggers are designated as Levels of Severity I, II, and III, and are tied to time frames to implement improvements or to enhance declining resources.

When an ASR identifies a level of severity for an area, the Board typically directs staff to prepare a Resource Capacity Study (RCS) for that area. The RCS is to provide a more detailed analysis and determination of the level of severity prior to certifying the level of severity and taking action to address the deficiency. An RCS draws from existing studies and information to confirm the level of severity determination and recommends actions for the Board to take within its authority to address the resource issue.

5.1.3.3.2 *Relationship to MWR*

There is an opportunity for MWR updates to utilize data collected on an annual basis by the RMS to document and analyze current and historical trends of supply and demand, compare actual water demands to the predicted range of future demands, and assist water resource management efforts. The RMS and RCSs can monitor the implementation of MWR recommendations to track and provide updates on water resource management strategies that are being implemented throughout the County. Recommendations for improved monitoring throughout the County were adopted by the Board in 2009 that when implemented, will benefit both the RMS and MWR updates by providing better data to assess water supply and demand.

5.1.3.3.3 *Timing*

The ASRs for the RMS are based on the water year, July 1st to June 30th, and are generally reviewed and approved by the Board early the following calendar year. RCSs are developed upon direction by the Board.

5.1.3.3.4 *Issues Related to Coordination*

Historically, the RMS has collected and reported on actual pumping and delivery data from water providers throughout the County that are willing to provide the information on an annual basis. This may not be reflective of the demand factors water providers, and consequently the MWR, utilize for planning purposes to assess the amount of supply needed to meet demand. For example, a common methodology for determining the water demand for planning is a ten-year running average, to account for fluctuations in demand year to year. Efforts are underway to refine the approach to presenting data in the ASRs for the RMS with regard to this issue.

Rural and agricultural demand data are lacking in a majority of the County, making it challenging for both the RMS and the MWR to assess whether a certain water resource is being used at or beyond its capacity. While implementation of the recommendations from the 2009 RMS ASR, along with other voluntary efforts to provide data, will go a long way, data collected over a longer time frame is most useful for planning purposes.

The MWR covers the whole County while the RMS is generally limited to population centers. Therefore, the annual mechanism for data collection is also limited to population centers. The County should consider expanding the RMS to include all areas of the County,

5.1.3.3.5 *Recommendations for Coordination*

- Continue to consider the RMS's contribution to other efforts like the MWR and others listed in this chapter in refining the approach to periodic reports and Level of Severity definitions.
- Refine data collection efforts with consideration of ultimately utilizing the data to assess resource capacity and conditions.

5.1.3.4 Agricultural Element

5.1.3.4.1 *Description*

The Agriculture Element focuses on wisely managing and protecting agricultural land-use resources in San Luis Obispo County. The mission of the Agriculture Element is to identify those areas of the county with productive farms, ranches and soils, and establish goals, policies and implementation measures that will enable their long-term stability and productivity. Key policies that relate to water resources are included below:

AG Policy 10: Water Conservation.

a. Encourage water conservation through feasible and appropriate "best management practices." Emphasize efficient water application techniques; the use of properly designed irrigation systems; and the control of runoff from croplands, rangelands, and agricultural roads.
b. Encourage the U.C. Cooperative Extension to continue its public information and research program describing water conservation techniques that may be appropriate for agricultural practices in this county. Encourage landowners to participate in programs that conserve water.

AG Policy 11: Agricultural Water Supplies.

a. Maintain water resources for production agriculture, both in quality and quantity, so as to prevent the loss of agriculture due to competition for water with urban and suburban development.
b. Do not approve proposed general plan amendments or rezonings that result in increased residential density or urban expansion if the subsequent development would adversely affect: (1) water supplies and quality, or (2) groundwater recharge capability needed for agricultural use.
c. Do not approve facilities to move groundwater from areas of overdraft to any other area, as determined by the Resource Management System in the Land Use Element.

Other Related Policies

Several other policies speak to land use preferences and environmental protection that, when implemented, help to protect water resources and/or preserve water resources for agricultural uses,

5.1.3.4.2 *Relationship to MWR*

Recommendations in the MWR are consistent with the policies in the Agriculture Element with respect to promotion of conservation and best management practices, understanding the condition of County water resources and optimizing use of surface water supplies for urban areas and/or to relieve pressure on groundwater basins as a source of supply.

5.1.3.4.3 *Timing*

The Agriculture Element is not anticipated to be updated in the foreseeable future.

5.1.3.4.4 *Issues Related to Coordination*

Given the prevalence of agricultural operations in the County, and that they are largely independently owned and operated, evaluating agricultural water demand on a land use basis and applying the various land use policies within the General Plan could result in a range of water demand forecasts. The wide variety of crop production systems and irrigation amounts contribute to the range of demand forecasts. Conversely, defunding of the Williamson Act could result in major efforts to develop land currently in agriculture—with unanticipated impacts on water resources.

5.1.3.4.5 *Recommendations for Coordination*

- Ensure agricultural processing facilities are included in agricultural demand calculations as appropriate and in accordance with the Agriculture Element.
- Consider the effect of land use policies when evaluating future demand scenarios.
- Track how implementation of MWR recommendations also implements Agriculture Element policies.

5.1.4 Sub-Regional/Area Water Resources Planning Documents

5.1.4.1 Description

Water suppliers that provide water directly, or treated water indirectly, to 3,000 connections or more, or in an amount of 3,000 AFY or more, are required to submit Urban Water Management Plans (UWMPs) to the State every five years (years ending in 00 or 05). For urban water purveyors, the UWMP is possibly the most critical and current source of information for updating the Master Water Report. These UWMPs document:

- Water supply source descriptions
- Historical water demands and demand projections
- Implementation of demand management measures
- Water shortage contingency plans
- Other water resources management strategies

Other water suppliers may from time to time develop water system master plans that contain similar information, but focus primarily on water distribution infrastructure and not water supply.

On a sub-regional basis, there are groundwater basin management groups that have been formed, as a result of court proceedings or voluntarily, that conduct and report on groundwater basin supply, demands, conditions, and management efforts.

On a regional basis, the San Luis Obispo Council of Governments (SLOCOG) has produced Community 2050, a Blueprint for Tomorrow's Growth, which is a collaborative

planning effort that utilizes scenario planning to study long-range regional growth. Together, public officials and community participants compared different growth scenarios using performance indicators such as traffic congestion, farmland conversion, housing production and economic benefit. Information derived from Community 2050 was presented in a regional vision to aid local jurisdictions in making improved investment decisions. Community 2050 includes water management principles and implementation strategies utilizing the region's 2007 IRWM Plan.

5.1.4.2 Relationship to MWR

These local, sub-regional and regional documents provide important supply and demand information and guidance on water management strategy evaluations for this MWR. Future updates to the water demand and supply sections of the MWR will be based primarily on these documents.

5.1.4.3 Timing

UWMPs are generally due to the State in years ending in 0 and 5. As a result of new legislation and changes to the Water Code, the deadline was extended to July 1, 2011, for 2010 UWMPs. Since UWMPs are prepared on a set schedule, updates to the MWR could be coordinated with the completion of these reports. Water System Master Reports are developed as needed by individual water suppliers. Reports from groundwater basin management groups are generally produced annually, with special studies released as needed. The draft Community 2050 document was released in December of 2008.

5.1.4.4 Issues related to coordination

Since there are so many individual water suppliers/management groups in the County, with various approaches to water resources planning, time-tables for completing or updating their documents, and levels of resources to participate in the development of the MWR, obtaining a consistent "snapshot" of supply and demand analyses can be a significant and challenging effort. Also, many of the water purveyors do not meet the water supply or service connection threshold for preparing an UWMP.

5.1.4.5 Recommendations for Coordination

- Develop a consolidated, coordinated mechanism for gathering County-wide water supply and demand information to avoid redundancy and ensure consistency.
- Consider the timing of release of local and sub-regional documents in developing a schedule for updating the MWR.
- Consider the analyses conducted to develop Community 2050 when updating the land use-based water demand analysis in the MWR.

5.2 RECOMMENDATIONS FOR FUTURE MASTER WATER REPORT UPDATES

One option is to update the MWR on a five year cycle, following the completion of UWMPs. Most water purveyors completed their 2010 UWMPs in June 2011. Unfortunately, this MWR update was initiated prior to the start of the 2010 UWMP cycle. The next cycle of UWMPs will be prepared in 2015 and the MWR could be updated in 2016 to have the most current urban water demand and supply information,

Other documents like the California Water Plan, the County General Plan, and IRWM Plan are not as predictable with their scheduled updates, so linking future MWR updates to these documents would not promote a consistent assessment of County-wide demands and supply,

Since UWMPs are updated in years ending in 0 or 5, the MWR could be updated in years ending in 1 or 6 (i.e. 2016, 2021, 2026, 2031…).

5.2.1 Areas of Improvement and Data Limitations

Certain areas discussed in this MWR update lacked sufficient data or the data was antiquated and did not reflect current conditions. Below is a brief list of areas where increased investigation or collection of current data would be useful in the long term planning needs of the County and future MWR updates,

- The description of hydrologic conditions of several groundwater basins are over 50 years old and should be updated.
- Future updates should gather groundwater supply information for undefined groundwater basins or fractured rock formations. Sufficient water supply appears to exist to support rural and commercial agricultural operations outside of defined basins and a better understanding of these supplies is needed,
- The agricultural demand assessment relied on the County Agriculture Commissioner's GIS pesticide database. The pesticide use permits provide the most accurate information available regarding the location of planned commercial agricultural production during the year, but in some instances may not be entirely accurate. Occasionally sites which obtain permits are not planted for a variety of reasons, and many vegetable crop sites may be planted with more than one crop rotation during a year (Isensee, 2009). More detailed investigation should be invested to assess the demands from these irrigated pastures that are not reported to the Agriculture Commissioner. The District could also consider completing a separate study that focused entirely on the County's agricultural demands and developing accurate irrigation rates by water planning area.

- The rural water demand assessment will need to be revised to match the County Planning Department's update on rural development and subdivision potential in unincorporated areas of the County,
- The current approach for evaluating the County's demands by water planning area should be refined to investigate the demand versus supply on a groundwater basin or watershed basis. The water planning areas could be maintained, but the understanding between demand and source of supply would be improved if the investigation looked more closely than the water planning area level.
- Environmental water demand planning-level assessments such as this one do not take the complexity of natural systems into consideration. Site- and project-specific instream flow requirements need to be completed to be able to determine a water balance that accounted for environmental water demand on a water planning area basis in future Master Water Reports. This would allow the environmental water demand to be quantified and represented on a sub-watershed or creek basis. The first steps in this effort are establishing appropriate data collection sites, identifying opportunities for coordination with appropriate entities on the effort and prioritizing locations to study first.

APPENDIX A - TM NO. 1, DESCRIPTION OF AVAILABLE DATE, PREPARED BY WALLACE GROUP IN ASSOCIATION WITH CAROLLO ENGINEERS, FUGRO WEST INC., AND CLEATH-HARRIS GEOLOGISTS

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

TECHNICAL MEMORANDUM NO. 1

AVAILABLE DATA DESCRIPTION

DRAFT
April 2011

7580 NORTH INGRAM AVENUE • SUITE 112 • FRESNO, CALIFORNIA 93711 • (559) 436-6616 • FAX (559) 436-1191

SAN LUIS OBISPO COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

AVAILABLE DATA DESCRIPTION

TECHNICAL MEMORANDUM
NO. 1

TABLE OF CONTENTS

Page No.

1.0 GROUNDWATER 1-2

2.0 STREAM FLOW 1-9

3.0 PRECIPITATION DATA SOURCES 1-9

4.0 RESERVOIR DATA SOURCES 1-10
4.1 Data Sources 1-11

5.0 WATER QUALITY 1-12
5.1 Sources of Data 1-12

6.0 UNIMPAIRED RUNOFF 1-12

7.0 LAND USE 1-12

8.0 AGRICULTURE 1-12

LIST OF TABLES

Table 1.1 Groundwater Reference Table 1 3
Table 1.2 Groundwater Reference Table 2 6

LIST OF FIGURES

Figure 1 County-wide Isohyetal Map of Average Rainfall 1-10

DESCRIPTION OF AVAILABLE DATA

This Chapter provides an overview of the data available with respect to water resources in San Luis Obispo County (County). In addition to this memorandum, excerpts from the County's Data Enhancement Plan, which describes the County's water resources data collection network, are provided in Chapter 3 of the Master Water Plan (MWP). Included in this technical memorandum are brief descriptions and an overview of information related to available data for the following:

- Groundwater
- Stream Flow
- Precipitation
- Reservoirs
- Water Quality (import and surface waters, groundwater)

1.0 GROUNDWATER

There are many different types of data related to groundwater and hydrogeology. Information categories may include aquifer descriptions, hydraulic parameters, geologic cross-sections, base of permeable sediments maps, water levels and water level contour maps, groundwater in storage, hydrologic budgets, safe yield estimates, water demand, and water quality. Some of the data changes over time, requiring periodic monitoring. The MWP process updates groundwater information using the most recent available data in the public domain. The County has also implemented a Data Enhancement Plan, which will utilize the information from this MWP Update to populate a comprehensive database that includes groundwater data.

The tables below provide a reference guide to groundwater information for the various groundwater basins in the County. Many of the references contain historical information that is not used for this MWP update; however, they are of value to understanding a basin's hydrogeology and groundwater resources. The State Department of Water Resources also maintains an inventory of groundwater basins, with descriptive information that is updated periodically. Most local basins are identified with a DWR basin number, which is included in the data reference tables. Refer to Chapter 3 and Appendix B of the Master Water Plan for a detailed description of groundwater resources in the County.

Table 1.1 Groundwater Reference Table 1
Description of Available Data
San Luis Obispo County Flood Control and Water Conservation District

Sub-Region	Basin / Area	DWR Groundwater Basin reference number	Groundwater References[a]	Water Quality References[a]
North Coast	San Carpoforo Valley	3-33	1, 2, 3	1, 2, 3, 4
	Arroyo de la Cruz Valley	3-34	1, 2, 3	1, 2, 3, 4
	Pico Valley		102, 144	
	San Simeon Valley	3-35	1, 2, 3, 101, 105, 106, 107, 142, 143	1, 2, 3, 4, 101, 104, 105, 106, 107, 142, 143
	Santa Rosa Valley	3-36	1, 2, 3, 101, 103, 105, 106, 107	1, 2, 3, 4, 101, 104, 105, 106, 107
Inland West	Atascadero Subbasin	3-4.06	1, 3, 110, 111, 112, 113, 114, 116, 117, 118, 119, 120, 121, 122	108, 109, 110, 111, 112, 116, 117, 120, 121
	Paso Robles Basin	3-4.06	1, 3, 111, 112, 113, 114, 115, 123, 124, 125, 76, 127, 128, 129, 130, 131, 132, 139, 140	1, 3, 111, 112, 115, 123, 124, 125, 126, 129, 130, 131, 132, 133, 134, 136, 139, 140
	Santa Margarita Valley	3-4.06	1, 3, 137, 138, 141, 145	1, 3, 135, 137, 138, 141
Inland Central	Paso Robles Basin	3-4.06	1, 3, 111, 112, 113, 114, 115	1, 3, 111, 112, 115
	Rinconada Valley	3-43	1, 3	
Inland East	Paso Robles Basin	3-4.06	1, 3, 111, 112, 113, 114, 115, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 139, 140	1, 3, 111, 112, 115, 123, 124, 125, 126, 129, 130, 131, 132, 133, 134, 136, 139, 140
	Carrizo Plain	3-19	1, 3	1
	Cholame Valley	3-5	1, 3	
	Pozo Valley	3-44	1, 3	1, 3
	Rafael Valley	3-46	1, 3	
	Big Spring Area	3-47	1, 3	

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Table 1.2 Groundwater Reference Table 2
Description of Available Data
San Luis Obispo County Flood Control and Water Conservation District

Sub-Region	Basin/Area	DWR reference number	Groundwater References	Water Quality References
North Coast	Villa Valley	3-37	1, 2, 3, 28, 37	1, 2, 3, 4
	Cayucos Valley	3-38	1, 2, 3, 5, 6, 37, 61	1, 2, 3, 4, 5
	Old Valley	3-39	1, 2, 3, 36, 37, 61	1, 2, 3, 4, 36, 66
	Toro Valley	3-40	1, 2, 3, 5, 37	1, 2, 3, 4, 5
	Morro Valley	3-41	3, 7, 8, 9, 28, 36, 37	4, 7, 8, 9, 11, 36
	Chorro Valley	3-42	3, 7, 8, 10, 28, 37	4, 7, 8, 10, 11, 29, 30
	Los Osos Valley	3-8	3, 12, 13, 14, 15, 19, 28, 36, 37, 52, 70, 71, 72	4, 16, 17, 18, 20, 21, 29, 36, 70
South Coast - North	San Luis Obispo Valley	3-9	3, 22, 28, 32, 33, 36, 37, 68	4, 22, 23, 29, 30, 32, 33, 36, 68
	Edna Valley	3-9	3, 25, 28, 37, 46	4, 24, 29
South Coast - South	Pismo Valley	3-12	3, 26, 34, 45, 46	4, 29
	Arroyo Grande Creek Valley	3-12	3, 26, 28, 37, 42, 43, 45	4, 29, 30
	Northern Cities	3-12	3, 26, 28, 31, 37, 41, 42, 43, 45, 48, 57	4, 29, 48, 57, 62, 63
	Nipomo Mesa	3-12	3, 26, 27, 28, 37, 38, 40, 44, 45, 48, 52, 57, 73, 74	4, 29, 30, 39, 44, 48, 57, 67, 74
	Santa Maria Valley	3-12	3, 26, 28, 36, 37, 45, 47, 49, 50, 51, 54, 56, 57, 60, 73	4, 29, 30, 36, 49, 54, 56, 57, 60
	Huasna Valley	3-45	3, 37	4
	Cuyama Valley	3-13	3, 37, 51, 58, 59	4, 29, 30, 36, 58

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2.0 STREAM FLOW

Refer to Chapter 3 and Appendix D of the Master Water Plan for a description of available stream flow data.

3.0 PRECIPITATION DATA SOURCES

Precipitation data is important to reference to understand how various micro-climates throughout the County or region impact local water demands. SLOCountyWater.org has a hyperlinked map of nearly 100 precipitation gages throughout the County with data associated with each gage. There are three types of gages, ALERT, Field Download, and Volunteer, each with its own level of data detail as described below:

- ALERT Gages: These automated gages provide real-time rainfall data. Historic data is not available from the website.
- Field Download Gages: Provide daily rainfall totals for the entire period of record. Short duration intensities are also shown for each water year.
- Volunteer Gages: Provide daily rainfall totals for the period of record and include a summary of monthly rainfall totals for the period of record. Some gages have continuous measurements from over 50 years of record.

The County Hydrology Report provides detailed descriptions and data for precipitation gages listed on the SLOCountyWater.org website.

The County Flood Control and Water Conservation District published an isohyetal map of the County showing average annual precipitation based on a 42-year period from 1956 to 1998. The map (Figure 1 below) is part of the County's Department of Public Works Public Improvement Standards.

The California Data Exchange Center (CDEC) (http://cdec.water.ca.gov/precip_maps/cc_1212precip.html) shows a map of 12 precipitation gages throughout the County with data associated with each gage. Some gages have over 100 years of record. Some data are monthly, but most are hourly.

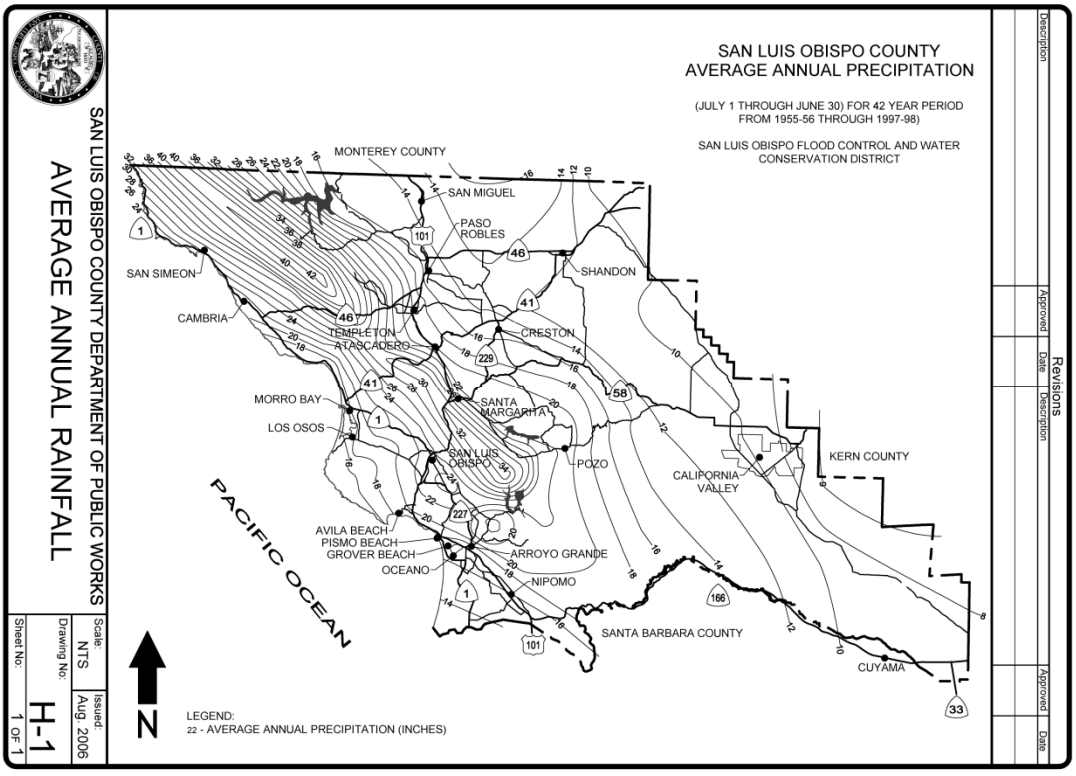
The California Irrigation Management Information System (CIMIS) (http://wwwcimis.water.ca.gov/cimis/welcome.jsp) weather stations collect weather data on a minute-by-minute basis, calculate hourly and daily values and store them in the data loggers. A computer at the Department of Water Resources (DWR) headquarters in Sacramento calls every station starting at midnight Pacific Standard Time (PST) and retrieves each day's data. Registered users may obtain not only rainfall, but many other weather data from this site, including evapotranspiration, temperature, wind speed, humidity, etc. There are four CIMIS weather stations in the County, with two in San Luis Obispo, one in Atascadero and one in Nipomo.

The National Weather Service (http://www.cnrfc.noaa.gov/rainfall_data.php) collects and reports data from approximately 28 rainfall gages in the County. Users can create custom maps showing daily rainfall totals for each County gage for any day back to November 2005. Data from earlier periods are available in other formats.

National Oceanic and Atmospheric Administration (NOAA) rainfall maps (NOAA Atlas 2) are available at http://www.nws.noaa.gov/oh/hdsc/noaaatlas2.htm. These maps provide precipitation depths for 2, 5, 10, 25, 50, and 100-year storms for both 6-hour and 24-hour intervals. The underlying data for these maps is being updated and a new atlas will be released later this year (2009).

More information on precipitation data is available in Chapter 3 of the MWP.

Figure 1 County-wide Isohyetal Map of Average Rainfall



4.0 RESERVOIR DATA SOURCES

This section describes the available data sources for County-wide water supply reservoirs, and information on storage, elevations, and water allocations. Details of water allocations and contractual arrangements with purveyors, is discussed in Chapter 3 and Appendix C of the MWP.

4.1 Data Sources

SLOCountyWater.org has a hyperlinked map of six county reservoirs with some data associated with each reservoir:

- Lopez Lake: Daily storage and release data from 2000 to present and from 1968 to 1998 in tabular form. Monthly data from 1968 to 1998. Also gives general information on capacity (49,388 AF) and maximum water elevation (523 feet)

- Nacimiento Lake: Current Daily data for the past week, including storage, releases, and rainfall. Also gives general information on capacity (377,900 AF) and maximum water elevation (800 feet)

- Santa Margarita Lake (Salinas Reservoir): Daily storage and release data from 1970 to present in tabular or graphical plots. Monthly data from 1942 to 1971 and 1984 to 2002. Also gives general information on capacity (23,843 AF) and maximum water elevation (1300.74 feet)

- Whale Rock: Daily storage data from 2005 to 2007 to present in tabular format. Also gives general information on capacity (40,662 AF) and maximum water elevation (216 feet)

- Twitchell Reservoir: Though located in SLO County, it is operated by SB Co FCD as a flood control structure and is not used directly for water supply (though releases are metered to maximize groundwater recharge in the Santa Maria River, which recharges the Santa Maria Groundwater Basin, used by numerous purveyors in the south county).

CDEC (http://cdec.water.ca.gov/staInfo.html) has historical information for Nacimiento Lake, Santa Margarita, and Whale Rock (Lopez Lake is not included).

- Nacimiento Lake: Monthly storage data from 1958 to present in CSV format or graphical plots. Also gives general information on capacity (377,900 AF), monthly averages, crest elevation (825')

- Santa Margarita Lake: Monthly storage data from 1956 to present in CSV format or graphical plots. Also gives general information on capacity (23,000 AF), monthly averages, crest elevation (1,325')

- Whale Rock: Monthly storage data from 1961 to present in CSV format or graphical plots. Also gives general information on capacity (40,700 AF), monthly averages, crest elevation (233')

The City of San Luis Obispo Utilities Department' website (http://www.slocity.org/utilities/sources.asp) describes the present and future water supply sources for the City of San Luis Obispo, including Whale Rock Reservoir and Santa Margarita Lake. The City's 2005 UWMP also describes the two reservoirs in detail,

including operation, safe yield, siltation issues, and Salinas Reservoir expansion plans (currently on hold).

Zone 3's 2005 Urban Water Management Plan (2005 UWMP) provides data and other information for Lopez Reservoir and the various entities that use it as a water source. Size, safe yield, allocations and other information is included.

The County Hydrology Report provides descriptions and data for all County reservoirs, including Chorro Creek Reservoir, used by the California Men's Colony. The data table on page 110 of this report provides a concise source of information for each reservoir.

5.0 WATER QUALITY

This subsection describes the available water quality information and data, relative to County-wide groundwater basins, and water quality data available from water purveyors.

5.1 Sources of Data

The sources of data available are briefly described in this subsection. Available Consumer Confidence Reports CCR were referenced for each of the water purveyors. Appendix C of the MWP includes a water quality summary table organized by water purveyor.

6.0 UNIMPAIRED RUNOFF

Refer to Chapter 3 and Appendix D of the Master Water Plan for a description of available unimpaired runoff data.

7.0 LAND USE

Refer to Chapter 3 and Appendix D of the Master Water Plan for a description of available land use data.

8.0 AGRICULTURE

Refer to Chapter 3 and Appendix D of the Master Water Plan for a description of available agriculture data.

APPENDIX B - TM NO. 2, WATER SUPPLY INVENTORY AND ASSESSMENT – DESCRIPTION OF WATER RESOURCES, PREPARED BY WALLACE GROUP IN ASSOCIATION WITH FUGRO WEST INC., AND CLEATH-HARRIS GEOLOGISTS

TECHNICAL MEMORANDUM NO. 2

Date: March 29, 2010 (Updated 1.21.11)

To: JOSE GUTIERREZ, CAROLLO ENGINEERS

From: STEVE TANAKA, WALLACE GROUP

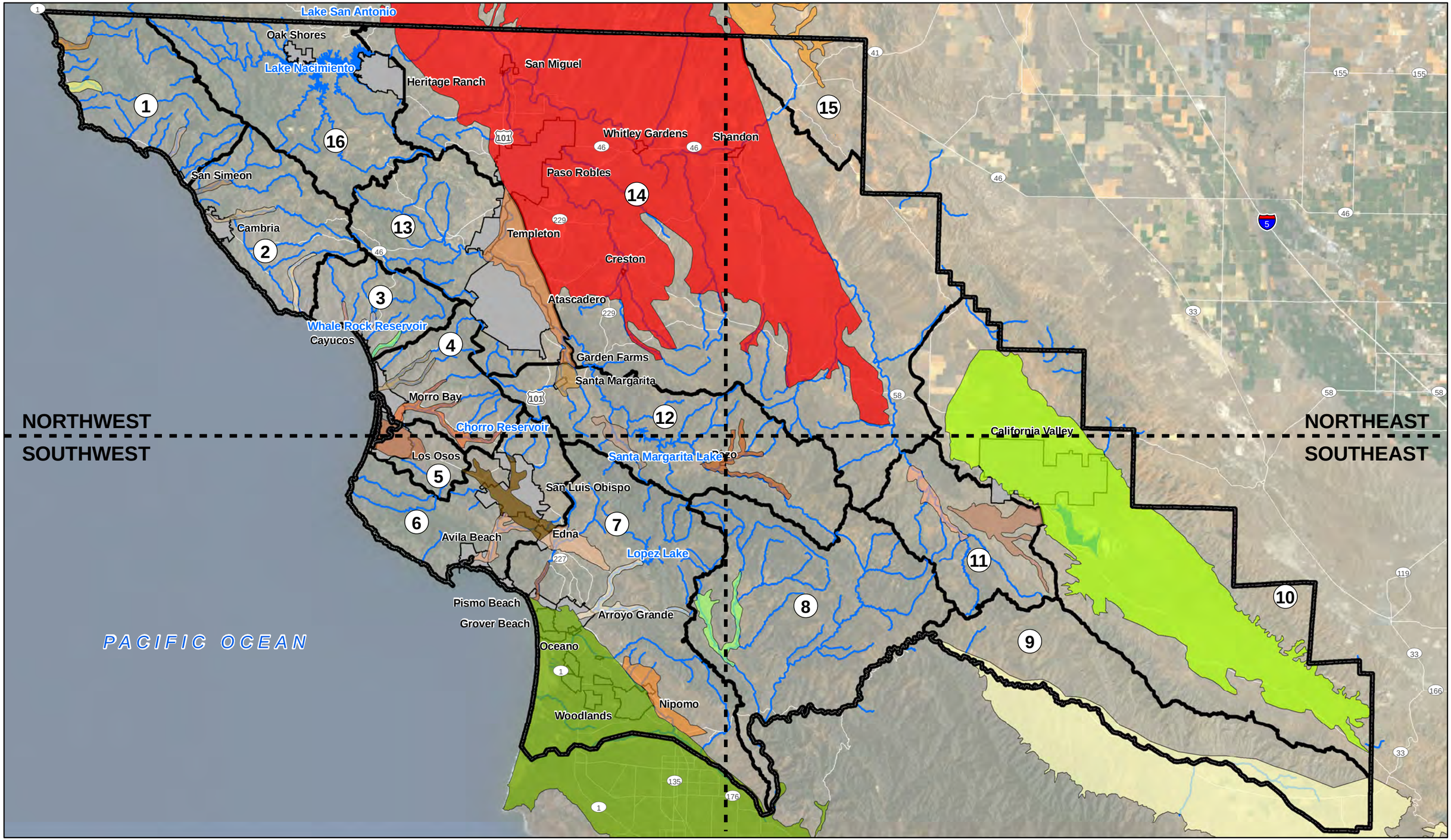
Subject: TASK C.3 WATER SUPPLY INVENTORY AND ASSESSMENT – DESCRIPTION OF WATER RESOURCES

In conjunction with Fugro West, Inc. and Cleath-Harris Geologists, we are submitting this technical memorandum No. 2 (TM) for Task C.3, Description of Water Resources. This TM focuses on groundwater resources throughout the County. A detailed list of groundwater reference documents, formatted as an Appendix, is to be included in the Master Water Plan. Water system production and consumption and other water resources including recycled water and desalination, is addressed in TM No. 3, Task C.3.

Groundwater basins are described in the following sections. The descriptions are arranged by Sub-region and Water Planning Area, as shown in Table 2.1 Refer to Figure 2.1 for a map depicting the groundwater basins in the region, and to Figures 2.2, 2.3, 2.4 and 2.5, respectively, showing four corresponding "quadrant" figures for basins in the northwest, northeast, southwest, and southeast areas of the County.

Table 2.1 – Groundwater Basins by Sub-Region

Sub-Region	WPA	Basin Name	Subbasin/Area
North Coast	1	San Carpoforo Valley	
		Arroyo de la Cruz Valley	
		Pico Creek Valley	
	2	San Simeon Valley	
		Santa Rosa Valley	
		Villa Valley	
	3	Cayucos Valley	
		Old Valley	
		Toro Valley	
	4	Morro Valley	
		Chorro Valley	
	5	Los Osos Valley	
South Coast	6	San Luis Obispo Valley	San Luis Valley Subbasin
			Avila Valley Subbasin
	7		Edna Valley Subbasin
		Santa Maria Valley	Pismo Creek Valley Subbasin
			Arroyo Grande Valley Subbasin
			Nipomo Valley Subbasin
			Northern Cities Management Area
			Nipomo Mesa Management Area
			Santa Maria Valley Management Area
	8	Huasna Valley	
	9	Cuyama Valley	
Inland	10	Carrizo Plain	
	11	Rafael Valley	
		Big Spring Area	
	12	Santa Margarita Valley	
		Rinconada Valley	
		Pozo Valley	
	13	Paso Robles	Atascadero Subbasin
	14		Paso Robles (main basin area)
	15	Cholame Valley	
	16	(none)	Nacimiento



San Luis Obispo County Flood Control and Water Conservation District

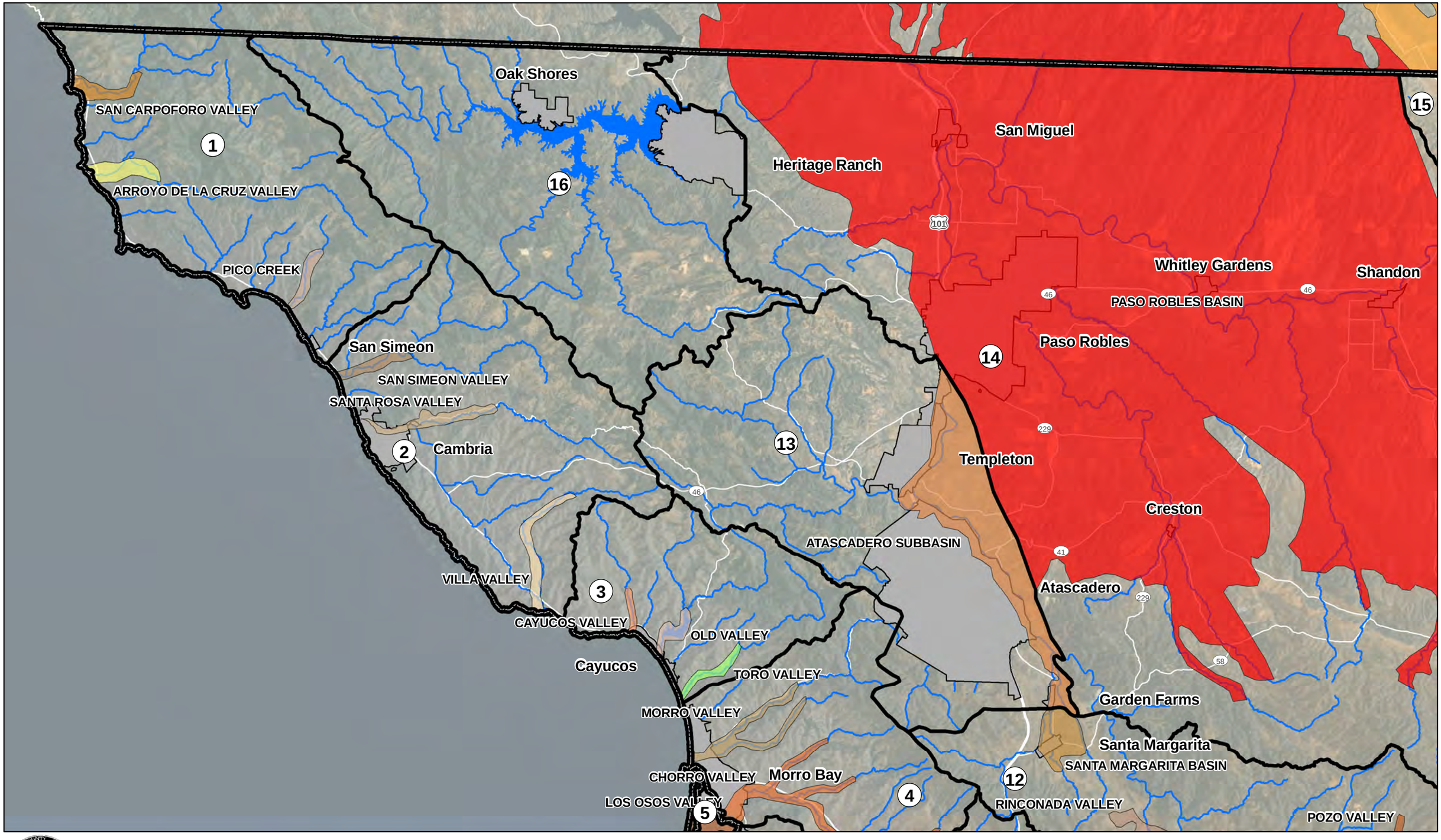
MASTER WATER PLAN

GROUNDWATER BASIN MAP

Legend

- County Boundary
- Water Planning Area
- Water Body
- URL/VRL Boundary
- Major Rivers/Streams

FIGURE 2.1



San Luis Obispo County Flood Control and Water Conservation District

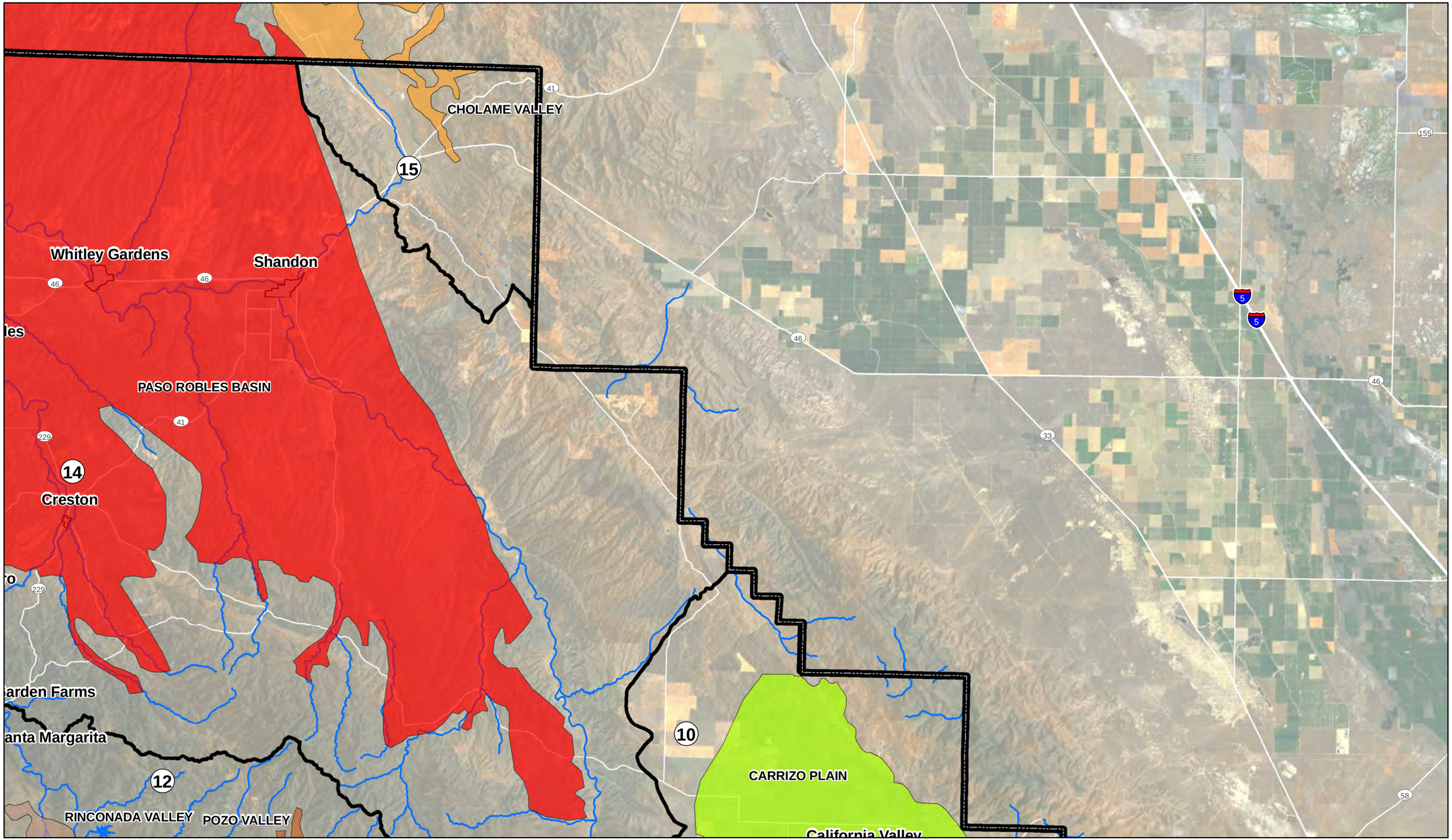
MASTER WATER PLAN

GROUNDWATER BASIN MAP NW

Legend

- County Boundary
- Water Planning Area
- Major Rivers/Streams
- URL/VRL Boundary
- Water Body
- Management Areas

FIGURE 2.2



San Luis Obispo County Flood Control and Water Conservation District

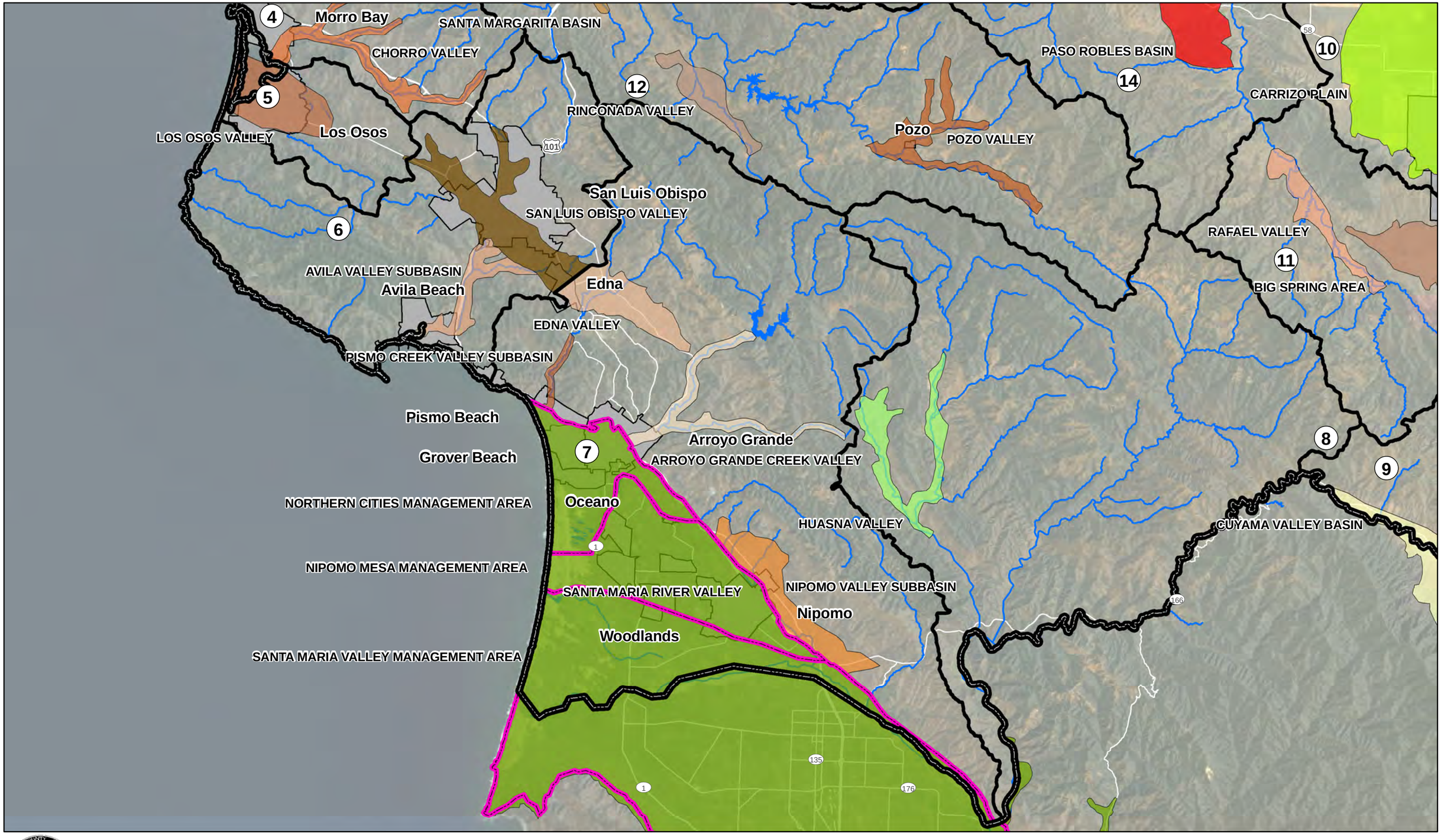
MASTER WATER PLAN

GROUNDWATER BASIN MAP NE

Legend

- County Boundary
- URL/VRL Boundary
- Water Planning Area
- Water Body
- Major Rivers/Streams

FIGURE 2.3



San Luis Obispo County Flood Control and Water Conservation District

MASTER WATER PLAN

GROUNDWATER BASIN MAP SW

Legend

- County Boundary
- URL/VRL Boundary
- Water Planning Area
- Water Body
- Major Rivers/Streams
- Management Areas

FIGURE 2.4

PASO ROBLES BASIN

California Valley

RINCONADA VALLEY

Pozo

POZO VALLEY

RAFAEL VALLEY

BIG SPRING AREA

CARRIZO PLAIN

ARROYO GRANDE CREEK VALLEY

HUASNA VALLEY

Nipomo

NIPOMO VALLEY SUBBASIN

SANTA MARIA RIVER VALLEY

CUYAMA VALLEY BASIN

12 14 11 10 8 7 9

58 33 101 135 176

San Luis Obispo County Flood Control and Water Conservation District

MASTER WATER PLAN

GROUNDWATER BASIN MAP SE

FIGURE 2.5

Legend

- County Boundary
- URL/VRL Boundary
- Water Planning Area
- Water Body
- Major Rivers/Streams
- Management Areas

NORTH COAST SUB-REGION

The North Coast sub-region is comprised of five Water Planning Areas (WPA's), including San Simeon (WPA 1), Cambria (WPA 2), Cayucos (WPA 3), Morro Bay (WPA 4), and Los Osos (WPA 5). A brief description of the basins within each WPA is provided below, with details on groundwater supply aquifers, groundwater users, basin yield, water quality, and water availability.

San Simeon Water Planning Area (WPA) 1

Groundwater basin descriptions in WPA 1 include San Carpoforo Valley, Arroyo de la Cruz Valley, and Pico Creek Valley.

San Carpoforo Valley Basin

The San Carpoforo Valley Groundwater Basin is located in the WPA 1 of the North Coast sub-region (Figure 2.2) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-33 (DWR, 2003). The basin underlies the San Carpoforo Valley and is 200 acres (0.3 square miles) in size. It is bounded to the west by the Pacific Ocean and on all other sides by impermeable rocks of the Jurassic to Cretaceous age Franciscan Group. The valley is drained by San Carpoforo Creek. Average annual precipitation in the basin ranges from 21 to 25 inches. Recharge to the basin comes primarily from seepage of surface flows in San Carpoforo Creek and deep percolation of precipitation.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. According to Bulletin 118, groundwater is found in Holocene and late Pleistocene age alluvium (DWR, 2003). Recharge to the basin is predominantly percolation of stream flow and to a lesser extent percolation of precipitation and irrigation return flows. The groundwater storage capacity was estimated as 1,800 AF. There are no current estimates of actual groundwater in storage volumes. The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

Water Users. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users.

Basin Yield. No estimates of basin yield exist.

Water Quality. No information is available describing water quality in the basin.

Water Availability. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. Groundwater levels in the basin are likely highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. During drought periods, flows in San

Carpoforo Creek are likely insufficient to adequately recharge the channel alluvium and groundwater levels could subsequently be lowered significantly due to pumping. Significant lowering of basin groundwater levels at or below sea level near the coast could lead to seawater intrusion and degradation of water quality. Additional constraints that would limit water availability in the basin are unknown.

Arroyo de la Cruz Valley Basin

The Arroyo De La Cruz Valley Groundwater Basin is located in the WPA 1 of the North Coast sub-region (Figure 2.2) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-34 (DWR, 2003). The basin is 750 acres (1.2 square miles) in size and is bounded by the Pacific Ocean to the west and on all other sides by impermeable rocks of Jurassic to Cretaceous age Franciscan Group. The basin underlies a valley that is drained by Arroyo De La Cruz. Annual precipitation in the basin ranges from 20 to 24 inches. Recharge to the basin comes primarily from seepage of surface flows in Arroyo de la Cruz, deep percolation of precipitation, and agricultural irrigation return flows.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. According to Bulletin 118, the main water-bearing unit in the basin is Holocene to late Pleistocene age alluvium (DWR, 2003). The alluvial deposits consist of sand, gravel, and clay and are up to 130 feet thick. Groundwater is largely unconfined, with water level elevations above sea level. The specific yield of the basin is estimated as 18 percent. Recharge in the basin is predominantly from percolation of stream flow and to a lesser extent from percolation of precipitation and irrigation return flows. Groundwater movement is generally westward. The groundwater storage capacity is estimated as 6,600 AF; however the actual amount in groundwater storage is unknown. The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

Water Users. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users.

Basin Yield**.** The safe yield of the basin was estimated to be 1,244 AFY (Enivcom, 1982).

Water Quality. Groundwater samples taken from 4 wells from 1957 to 1985 show total dissolved solids concentration ranging from 211 to 381 mg/l.

Water Availability. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. Groundwater levels in the basin are likely highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. During drought periods, flows in Arroyo De La Cruz are likely insufficient to adequately recharge the channel alluvium and groundwater levels could subsequently be lowered significantly due to pumping. Significant lowering of basin groundwater levels at or below sea level near the coast could lead to seawater

intrusion and degradation of water quality. Additional constraints that would limit water availability in the basin are unknown.

Pico Creek Valley Basin

The Pico Creek Groundwater Basin is located in WPA 1 of the North Coast sub-region (Figure 2.2). Although studied elsewhere, the basin is not formally defined as a basin under California's Groundwater Bulletin 118 program. The basin is 62.5 acres (about one-tenth of a square mile) in size and underlies Pico Creek Valley (Cleath, 1986). The basin is bounded by the Pacific Ocean to the west and extends inland about 7,000 feet under the stream channel and floodplain of the Pico Creek. From the Pacific Ocean to about 1,200 feet inland, the basin is undeveloped. The Hearst Ranch is located from 1,200 feet inland to about 4,000 feet inland. Recharge to the basin comes primarily from seepage of surface flows in Pico Creek and deep percolation of precipitation.

Supply Aquifers. The main water-bearing unit in the basin is the Pico Creek alluvium (Cleath, 1986). The alluvium generally consists of sands, gravels, silt, and clay with a maximum thickness of about 60 feet, thinning in the northern, southern, and upstream directions in the valley. The alluvium between the ocean and Hearst Ranch is divided into a shallow and a deep aquifer, where the two aquifers are separated by a clay zone that acts as an aquitard. Above and below the clay zone are sand and gravel sediments. The saturated thickness of the shallow aquifer varies during the year and can be further divided into two layers: a layer above sea level and a layer below sea level. The saturated thickness of the layer above sea level varies in thickness from zero to 6 feet when the creek is flowing. The layer below sea level is continuously saturated and varies in thickness from 1 to 21 feet in the west to east direction. The deep aquifer below the clay zone is also continuously saturated and has a uniform thickness of about 19 feet (Cleath, 1986).

The clay zone is not present upstream of the Hearst Ranch and the alluvium eastward from there forms a single aquifer. The saturated thickness of the alluvium east of the Hearst Ranch is known to vary seasonally.

In general, the average specific yield of the alluvial sediments is about 17 percent. Recharge in the basin is predominantly from percolation of stream flow in the Pico Creek and to a lesser extent from percolation of precipitation. Historically, the creek flows during the winter months and does not flow during the summer months.

The basin contains groundwater stored both above sea level and below sea level. The available groundwater in storage above sea level is about 40 AF (Cleath, 1986). Much of the groundwater in storage below sea level has experienced sea water intrusion and is of lesser water quality. The available groundwater in storage below sea level is less than 50 AF.

Water Users. Water users in the basin include the San Simeon Community Services District and Hearst Ranch.

Basin Yield. The basin yield was initially estimated to be 120 AFY (Cleath, 1986).

Water Quality. Contamination of water supply wells due to seawater intrusion is a major water quality concern in the basin (Cleath, 1986). Lowering of groundwater levels below sea level in the basin during the summer months when creek flows are absent and pumping is active

can result in the landward migration of the sea water/fresh groundwater interface. Although seawater intrusion has increased salinity levels in groundwater pumped from local water supply wells, it has not degraded water quality to the point that the water is non-potable. The 2008 Consumer Confidence Report for two San Simeon CSD wells reported that measured concentrations of all analyzed contaminants were below their respective Maximum Contaminant Level (MCL) or Regulatory Action Level (AL) values. In particular, the measured total dissolved solids concentration was 380 mg/l.

Water Availability. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. Currently the water supply of San Simeon CSD is at a certified Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (SLO County, 2008). As a result, a moratorium on development has been in place since 1991.

Since at least the mid-1980s, sea water intrusion has occurred within the Pico Creek Groundwater Basin (Cleath, 1986). The location of the sea water/fresh groundwater interface is a function of annual climate and groundwater pumping in the basin. Although the actual basin yield will vary annually depending on local precipitation and stream flow in the creek, extractions during an average water year should be maintained less than the estimated average-year basin yield of 120 AFY. Restricting groundwater extractions to no greater than the basin yield is intended to help mitigate against the occurrence of seawater intrusion into the basin and subsequent degradation of groundwater quality.

Cambria WPA 2

Groundwater basin descriptions in WPA 2 include San Simeon Valley, Santa Rosa Valley, Villa Valley.

San Simeon Valley Basin

The San Simeon Valley Groundwater Basin is located in the WPA 2 of the North Coast sub-region (Figure 2.2) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-35 (DWR, 2003). The basin underlies San Simeon Valley and is 620 acres (1 square mile) in size. It is bounded to the west by the Pacific Ocean, to the east by the Santa Lucia Range, and elsewhere by impermeable Franciscan Group rocks. The basin is drained by San Simeon Creek. Precipitation varies across the valley from 20 inches along the coast to about 26 inches at the eastern end of the valley floor to more than 40 inches at the headwaters of San Simeon Creek. Recharge to the basin comes primarily from seepage of surface flows in San Simeon and Van Gordon creeks, deep percolation of precipitation, and agricultural irrigation return flows.

Supply Aquifers. According to Bulletin 118, groundwater is found in Holocene age alluvial deposits underlying San Simeon Creek (DWR, 2003). The alluvial deposits consist of unconsolidated gravel, sand, clay, and silt. The alluvium varies in thickness from about 100 feet beneath the center of the valley to more than 120 feet at the coast (Yates and Van Konyenburg, 1998). Groundwater in the alluvium is unconfined and generally flows westward. The alluvium has an estimated specific yield of 18 percent and is recharged predominantly by percolation of stream flow and to a lesser extent from deep percolation of precipitation and irrigation return flows (DWR, 1958). The groundwater storage capacity is estimated as 4,000 AF; however the

actual amount in groundwater storage is unknown (DWR, 2003). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions.

Water Users. Water users in the basin include the Cambria Community Services District and overlying users.

Basin Yield**.** The safe yield of the basin was estimated to be 1,040 AFY (Cambria County Water District, 1976).

Water Quality. Groundwater samples from 31 wells collected from 1955 to 1994 show total dissolved solids (TDS) concentration ranging from 46 to 2,210 mg/l (DWR, 2003). Samples from three public supply wells show a TDS concentration range of 400 to 420 mg/l with an average concentration of 413 mg/l. Manganese concentrations in the downstream regions of the basin have exceeded the MCL, with a range of 0.002 to 1.6 mg/l (Yates and Van Konyenburg, 1998). The 2007 Consumer Confidence Report for Cambria CSD reported that measured concentrations of all analyzed contaminants were below their respective Maximum Contaminant Level (MCL) or Regulatory Action Level (AL) values. In particular, the measured total dissolved solids concentration was 440 mg/l.

Water Availability. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Water Resources Control Board (SWRCB) allows a maximum extraction of 1,230 AFY in the San Simeon Valley Groundwater Basin and a maximum dry season extraction of 370 AF (Cambria CSD WMP, 2008). Although the actual dates will vary each year depending on creek flows and rainfall occurrence, the dry season generally spans from May through October. Groundwater levels in the basin are generally highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. During drought periods, flows in San Simeon Creek can be insufficient to adequately recharge the channel alluvium and groundwater levels could subsequently be lowered significantly. Significant lowering of basin groundwater levels at or below sea level near the coast could lead to seawater intrusion and degradation of water quality, however as a practical matter, the operating practices by the Cambria CSD of their water supply wells prevents significant lowering of water levels and maintains groundwater quality. Therefore, as a practical matter, the start of the dry season and the groundwater levels at that time limit the actual amount of groundwater that can be extracted during the dry season.

Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (Cambria CSD WMP, 2008).

Santa Rosa Valley Basin

The Santa Rosa Valley Groundwater Basin is located in WPA 2 of the North Coast sub-region (Figure 2.2) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-36 (DWR, 2003). The basin underlies the Santa Rosa Valley and is 4,480 acres (7 square miles) in size. It is bounded to the west by the Pacific Ocean and on all other sides by impermeable rocks of the Jurassic to Cretaceous age Franciscan group. The valley is drained by Green Valley, Perry, and Santa Rosa creeks. Average annual precipitation in the basin ranges from 20 inches along the coast to 26 inches along the eastern end of the valley to 40

inches at the creek headwaters (Yates and Van Konyenburg, 1998). Recharge to the basin comes primarily from seepage of surface flows in Santa Rosa Creek and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

Supply Aquifers. According to Bulletin 118, the main water-bearing unit in the basin is unconfined alluvium (DWR, 2003). The alluvium is composed of unconsolidated sand, clay, silt, and gravel of predominantly fluvial origin, and ranges in total thickness from 100 feet near the middle of the valley to 120 feet along the coast. Estimated specific yield of the alluvium is 17 percent. The groundwater storage capacity of the basin has been estimated as 24,700 AF (DWR, 1975). The volume of groundwater in storage likely fluctuates widely in response to seasonal variations in rainfall and pumping extractions. The actual amount of groundwater in storage is unknown. Basin recharge occurs as percolation of stream flow, percolation of precipitation, and irrigation return flows.

Water Users. Water users in the basin include the Cambria Community Services District (CSD) and overlying users.

Basin Yield. The safe yield of the basin has been estimated to be 2,260 AFY (Cambria County Water District, 1976).

Water Quality. Groundwater sampled from one public supply well had a total dissolved solids concentration of 680 mg/l. Increases in measured groundwater chloride concentration suggest the possibility of seawater intrusion into the basin (DWR, 1975). From 1955 to 1975, measured chloride concentration increased from 80 mg/l to 933 mg/l (DWR, 1975), where background chloride concentration typically range from 30 to 270 mg/l (Yates and Van Konyenburg, 1998).

The Cambria CSD Urban Water Management Plan (UWMP) (Cambria CSD, 2005) noted the existence of an MtBE plume moving towards its Santa Rosa well field. The UWMP also noted that although the plume was still present at the time the UWMP was prepared, the district was taking action to remove the MtBE from the groundwater through a remediation program.

Water Availability. The primary constraints on water availability in the basin include physical limitations and potential water quality issues. The State Water Resources Control Board (SWRCB) allows a maximum extraction of 518 AFY in the Santa Rosa Valley Groundwater Basin and a maximum dry season extraction of 260 AF (Cambria CSD WMP, 2008). The California Coastal Commission Coastal Development Permit defines the Santa Rosa Creek dry period as July 1 to November 20, and restricts pumping during this period to 260 AF. In general, groundwater levels in the basin are typically highest during the wet season, steadily decline from these levels during the dry season, and recover again to higher levels during the next wet season. During drought periods, flows in Santa Rosa Creek can be insufficient to adequately recharge the channel alluvium and groundwater levels could subsequently be lowered significantly. Significant lowering of basin groundwater levels at or below sea level near the coast could lead to seawater intrusion and degradation of water quality.

Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands (Cambria CSD WMP, 2008).

Villa Valley Basin

The Villa Valley groundwater basin is part of the WPA 2 in the North Coast sub-region (Figure 2.2) and encompasses approximately 980 acres (1.5 square miles). The basin is bounded by the Pacific Ocean on the west and elsewhere by relatively impermeable rocks of the Jurassic to Cretaceous age Franciscan Formation. Villa Valley has been designated by the DWR as Basin 3-37 and is entirely within unincorporated San Luis Obispo County (DWR, 2003). Recharge to the basin comes primarily from seepage of surface flows in Villa Creek, deep percolation of precipitation, and residential/agricultural return flows.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for the Villa Valley basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. The aquifer consists of alluvial deposits drained by Villa Creek. These deposits are up to approximately 50 feet thick.

Water Users. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural and residential purposes by overlying users.

Basin Yield. The projected safe seasonal yield of Villa Valley groundwater basin was historically estimated at 1,000 AFY (DWR, 1958). There has been no subsequent basin study to confirm or update this estimate.

Water Quality. Seawater intrusion has been reported historically in the lower portion of the basin (DWR, 1975). Upstream of sea water influence, the general mineral character of groundwater is calcium-magnesium bicarbonate to calcium-magnesium sulfate-bicarbonate, with an average TDS of 500 mg/l in samples collected from three wells between 1965 and 1970 (STORET Legacy Database).

Water Availability. Constraints on water availability in the Villa Valley basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. For the upper Villa Valley, water level and well capacity declines during drought would limit the availability of the resource, while in the lower valley area sea water intrusion would be the primary constraint.

Cayucos WPA 3

Groundwater basin descriptions in WPA 3 include Cayucos Valley, Old Valley, and Toro Valley.

Cayucos Valley Basin

The Cayucos Valley groundwater basin is part of the WPA 3 in the North Coast sub-region (Figure 2.2) and encompasses approximately 580 acres (0.9 square miles). The basin is

bounded to the west by the Pacific Ocean and elsewhere by the generally non-water bearing Cretaceous-Jurassic rock units of the Franciscan Formation (Cleath, T. S., 1988). Cayucos Valley has been designated by the DWR as Basin 3-38 and is entirely within unincorporated San Luis Obispo County. Annual rainfall averages 16-18 inches (DWR, 2003). Recharge to the basin comes primarily from seepage of surface flows in Cayucos Creek, deep percolation of precipitation, and residential/agricultural return flows.

Some of the published hydrogeologic information for the Cayucos Valley groundwater basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Water Users. Basin groundwater users include a small public water system (mobile home park) and overlying residential and agricultural users. The Morro Rock Mutual Water Company and Paso Robles Beach Water Association service areas overlie a portion of the basin, however, these purveyors do not pump from the Cayucos Valley basin.

Supply Aquifers. The water supply aquifer is within the alluvial deposits of Cayucos Creek, which are comprised of gravel, sand, silt and clay. These alluvial deposits extend up to an estimated 80 feet thick, and are at least 68 feet thick at a distance of one mile inland from the coast (Cleath, T. S., 1988).

Basin Supply. The projected safe seasonal yield of the Cayucos Valley groundwater basin was historically estimated at 600 AFY (DWR, 1958). There has been no subsequent basin-wide study to confirm or update this estimate. Estimated production from the basin was 350 AFY in 1987 (Cleath, T. S., 1988).

Water Quality. There is evidence of sea water intrusion in the basin extending to the mobile home park wells and ranch wells immediately upstream of Highway 1. The general mineral character of groundwater upstream of the sea water influence is magnesium-bicarbonate, with a TDS concentration of close to 500 mg/l (Cleath, T. S., 1988).

Water Availability. Constraints on water availability in the Cayucos Valley basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. For the upper Cayucos Valley, water level and well capacity declines during drought would limit the availability of the resource, while in the lower valley area sea water intrusion would be the primary constraint.

Old Valley Basin

The Old Valley groundwater basin is part of the WPA 3 in the North Coast sub-region (Figure 2.2) and encompasses approximately 750 acres (1.2 square miles). The basin is bounded by the Pacific Ocean on the south and by relatively impermeable rocks of the Jurassic to Cretaceous age Franciscan Formation on all other sides. Old Valley, which includes Whale Rock reservoir, has been designated by the DWR as Basin 3-39 and is entirely within unincorporated San Luis Obispo County. Annual rainfall averages 16-18 inches (DWR, 2003).

Basin recharge upstream of the reservoir comes primarily from deep percolation of precipitation and seepage from surface flows in Cottontail Creek and Old Creek. Below the dam, recharge includes dam underflow and seepage from reservoir releases.

Water Users. Basin groundwater users downstream of Whale Rock reservoir include members of the Cayucos Area Water Organization (CAWO; Morro Rock Mutual Water Company, Paso Robles Beach Water Association, and County Service Area 10A), the Cayucos Cemetery District, and two landowners. The combined groundwater and Whale Rock reservoir surface water allocation for CAWO in Old Valley is 600 AFY, distributed as follows: PRBWA at 222 AFY; MRM at 170 AFY; CSA 10A at 190 AFY (plus 25 AFY of San Luis Obispo's entitlement via exchange for Lake Nacimiento water), and the Cemetery District at 18 AFY (CSA 10A, 2003). For the downstream landowners, it is 64 AFY. Upstream of the reservoir are residential and agricultural overlying users. Whale Rock reservoir water users, including the City of San Luis Obispo, Cal Poly and the California Men's Colony, are discussed in Technical Memorandum 3.

Supply Aquifers. The water supply aquifer is within the alluvial deposits of Old Creek and upstream tributary valleys, which are comprised of sands, gravels and clays. These alluvial deposits extend up to an estimated 72 feet thick (Cleath & Associates, 1993, 1995).

Basin Supply. Production from wells in the lower Old Valley groundwater basin (below the reservoir) ranged from 389 to 603 AFY, with an average of 505 AFY between 1981 and 1992. The lower basin was estimated to have a yield capable of providing the entire 600 AFY CAWO allocation, although releases from the reservoir were necessary to preclude sea water intrusion (Cleath & Associates 1993, 1995). With direct deliveries of CAWO downstream entitlement to a water treatment plant beginning in 1997, re-evaluation of the yield in this part of the Basin has not been a high priority.

Water Quality. The general mineral character of groundwater below the reservoir is calcium-magnesium bicarbonate, with an average TDS of 440 mg/l in 2008 (CSA 10/10A, 2008).

Water Availability. Constraints on water availability in the Old Valley basin include physical limitations, water rights, and environmental considerations. Shallow alluvial deposits upstream of the reservoir are susceptible to drought impacts, having limited groundwater in storage. For the area below the reservoir, dam underflow may provide a source of recharge. Water agreements limit the amount of groundwater available to the members of CAWO and downstream landowners in Old Valley, however, and the riparian habitat supports pond turtles and steelhead trout (on a periodic basis).

Toro Valley Basin

The Toro Valley groundwater basin is part of the WPA 3 in the North Coast sub-region (Figure 2.2) and encompasses approximately 510 acres (0.8 square miles). The basin is bounded to the west by the Pacific Ocean and elsewhere by generally non-water bearing rock units of the Cretaceous-Jurassic age Franciscan Formation, although springs issue from tertiary age formations on the northern rim of the watershed. Toro Valley has been designated by the DWR as Basin 3-40 and is entirely within unincorporated San Luis Obispo County (Cleath, T. S., 1988; DWR, 2003). Recharge to the basin comes primarily from seepage of surface flows in Toro Creek, deep percolation of precipitation, and residential/agricultural return flows.

Some of the published hydrogeologic information for the Cayucos Valley groundwater basin is over 20 years old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Water Users. Basin water users include Chevron (with agricultural tenants), and overlying residential and agricultural users.

Supply Aquifers. The water supply aquifer is within the alluvial deposits drained by Toro Creek, which are comprised of gravel, sand, silt and clay. These alluvial deposits extend up to an estimated 80 feet thick, and average approximately 50 feet thick in the lower portion of the basin (McClelland Engineers, 1988).

Basin Supply. The projected safe seasonal yield of the Toro Valley groundwater basin was historically estimated at 500 AFY (DWR, 1958). Estimates of hydrologic budget items for 1987 conditions included 591 AFY of percolation of precipitation and 532 AFY of basin groundwater production. Basin studies estimated that up to 1,260 acre-feet of additional water (beyond existing uses) would be available annually, on average, from induced stream flow seepage if new wells were constructed. However, the studies also indicated that during drought this additional supply could be significantly less than the average annual value (McClelland Engineers, 1988). Given the shallow nature of alluvial deposits and limited groundwater in storage, the safe yield estimate for this Master Water Plan Update is limited to the documented historical production that has not resulted in water supply problems, which to date has been up to 532 AFY.

Water Quality. Water quality data for a well approximately 0.7 miles inland of the coast between 1954 and 1987 indicates mild sea water intrusion at this location in the basin, with chloride concentrations up to 129 mg/l. The general mineral character of groundwater is generally magnesium-bicarbonate, with a TDS concentration typically between 400 mg/l and 700 mg/l (STORET Legacy Database and DWR, 2003). In the lower basin area near Highway 1, petroleum hydrocarbon contamination associated with the Chevron marine terminal has been detected in groundwater and remedial activities are ongoing (GeoTracker Database).

Water Availability. Constraints on water availability in the Toro Valley basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. For the upper Toro Valley, water level and well capacity declines during drought would limit the availability of the resource, while in the lower valley area sea water intrusion and petroleum hydrocarbon contamination would be the primary constraint. Toro Valley may be capable of providing significant additional yield through induced stream flow seepage, although drought impacts are not known.

Morro Bay WPA 4

Groundwater basin descriptions in WPA 4 include the Morro Valley and Chorro Valley.

Morro Valley Basin

The Morro Valley groundwater basin is part of the WPA 4 in the North Coast sub-region (Figure 2.2) and encompasses approximately 1,200 acres (1.9 square miles). The basin is bounded to the west by the Pacific Ocean and Morro Bay estuary, and elsewhere by contact with impermeable rock units of the Cretaceous-Jurassic age Franciscan Formation. Morro Valley is designated by the DWR as Basin 3-41. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area southwest of the narrows near Highway 1 (DWR, 2003). Recharge to the basin comes primarily from seepage of surface flows in Morro Creek and Little Morro Creek, deep percolation of precipitation, and residential/agricultural return flows.

Supply Aquifers. The water supply aquifers are predominantly within the Holocene alluvial deposits drained by Morro Creek, which are comprised of gravel, sand, silt and clay. Unconsolidated saturated deposits near the coast include Holocene beach/dune sands and lagoonal fine grained sediments. The alluvial deposits are typically up to 80 feet thick (Cleath & Associates, 2007).

Water Users. Basin groundwater users include the City of Morro Bay, Morro Bay power plant, a cement plant, a small public water system (mobile home park), and residential and agricultural overlying users. The City of Morro Bay pumps sea water and Morro Creek underflow from the basin, the latter with a permitted allocation of 581 AFY from the State Water Resources Control Board.

Basin Yield. The existing perennial yield of the Morro Valley groundwater basin is estimated at 1,500 AFY. Groundwater modeling performed to evaluate the impacts of sea water well operation on the basin indicated that concurrent operation of the City of Morro Bay's sea water and fresh water supply wells could interfere during drought conditions such that the fresh water wells would be subject to sea water intrusion (Cleath & Associates, 1993a; 1993b).

Water Quality. The general mineral character of groundwater is typically magnesium-calcium bicarbonate, except near the coast, where sea water intrusion has occurred. Sea water intrusion and nitrates are the predominant concerns for water quality in the Morro Valley basin. In the mid-1980's TDS concentrations in groundwater downstream of the narrows near Highway 1 began to exceed 1,000 mg/l seasonally due to sea water intrusion. More recently, basin TDS concentrations (measured in 2007) were typically between 400 and 800 mg/l and increasing toward the coast, except for an area beneath agricultural fields in the lower valley where TDS concentrations reached 1000 mg/l, and nitrate concentrations reached 220 mg/l as nitrate (Cleath & Associates 1993a; 2007).

Water Availability. Primary constraints on water availability in the Morro Valley basin include physical limitations, water quality issues, and water rights. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. For the upper Morro Valley, water level and well capacity declines during drought would limit the availability of the resource, while in the lower valley area sea water intrusion would be the

primary constraint. Elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field, where production is also limited by appropriative water right permits from the State Water Resources Control Board.

Chorro Valley Basin

The Chorro Valley groundwater basin is part of WPA 4 in the North Coast sub-region (Figures 2.2 and 2.4) and encompasses approximately 3,200 acres (5 square miles), although the effective extent of saturated basin deposits covers an estimated 1,900 acres (3 square miles). The basin is bounded to the west by the Morro Bay estuary and elsewhere by contact with impermeable rock units of Tertiary dacite and Cretaceous-Jurassic age Franciscan Formation (Cleath-Harris Geologists, 2009). Chorro Valley is designated by the DWR as Basin 3-42. Most of the basin area is within unincorporated San Luis Obispo County, with the City of Morro Bay overlying the basin area near the Morro Bay estuary. Recharge to the basin comes primarily from seepage of surface flows in Chorro Creek and tributaries (including wastewater treatment plant discharges and releases from Chorro Reservoir), deep percolation of precipitation, and residential/agricultural return flows.

Supply Aquifers. The water supply aquifers are within the Holocene alluvial deposits drained by Chorro Creek, which are comprised of gravel, sand, silt and clay. These alluvial deposits are 50-70 feet thick downstream of Canet Road, and include a permeable basal sand and gravel bed up to 30 feet thick, overlain by finer-grained flood plain deposits of sand, silt, and clay with some shallow gravelly lenses (Cleath-Harris Geologists, 2009).

Water Users. Basin groundwater users include the City of Morro Bay, San Luis Obispo County, California State Parks, California State Polytechnic University, California National Guard, California Men's Colony, and residential and agricultural overlying users. The City of Morro Bay pumps Chorro Creek underflow from the basin and has a permitted allocation of 1,142.5 AFY through the State Water Resources Control Board.

Basin Yield. The safe yield of the Chorro Valley basin was last reviewed by Cleath & Associates in 1993. Although no yield value was listed at that time, a 1992 groundwater production estimate of 2,210 AFY can be obtained from Table 4 of the 1993 report, along with a conclusion (page 16) that the basin was not in overdraft. Therefore, in accordance with methodology used historically by the Department of Water Resources for other coastal basins in San Luis Obispo County, the perennial yield of the Chorro Valley basin is estimated for planning purposes at 2,210 AFY (Cleath & Associates, 1993a; DWR, 1958).

Water Quality. The general mineral character of groundwater is typically magnesium bicarbonate to magnesium-calcium bicarbonate, except near the bay where sea water intrusion can occur seasonally, or in wells influence by wastewater treatment plant discharges into Chorro Creek. Nitrate concentrations are a concern for water quality in the lower portion of Chorro Valley basin. Sea water intrusion has been documented historically and is a potential future concern in the Chorro Flats area, should pumping patterns change significantly. Recent basin TDS concentrations (measured in 2008) were typically between 500 and 700 mg/l (DWR, 1975; Cleath-Harris Geologists, 2009).

Water Availability. Constraints on groundwater availability in the Chorro Valley basin include physical limitations, water quality issues, environmental demand, and water rights. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper

formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. In the Chorro Valley upstream of the Chorro Creek discharge point for the California Men's Colony wastewater treatment plant, water level and well capacity declines during drought would limit the availability of the resource. The wastewater plant discharges enter the basin as imported water sources, and therefore provide additional available water for basin wells and environmental demand below the discharge point. In the lower valley area, sea water intrusion would be a primary constraint during drought. The Elevated nitrates are a constraint for drinking water availability at the City of Morro Bay well field where production is also limited by appropriative water right permits from the State Water Resources Control Board. These permits for underflow production by the City of Morro Bay have also been conditioned to require minimum surface flows in Chorro Creek for Steelhead habitat protection.

Los Osos WPA 5

Los Osos Valley is the only groundwater basin in WPA 5.

Los Osos Valley Basin

The Los Osos Valley groundwater basin is part of WPA 5 in the North Coast sub region (Figure 2.4) and encompasses approximately 10 square miles, of which 3.3 square miles underlie the Morro Bay estuary and sand split, and 6.7 square miles underlie the communities of Los Osos, Baywood Park, and the Los Osos Creek valley. The basin is effectively bounded to the west by the Pacific Ocean, and elsewhere by relatively impermeable rocks of the Tertiary age Pismo Formation, Tertiary dacite and the Cretaceous-Jurassic age Franciscan Formation. The southern basin boundary also parallels the main strand of the Los Osos fault. Los Osos Valley is designated by the DWR as Basin 3-8 (DWR, 2003; Cleath & Associates, 2005). The basin is entirely within unincorporated San Luis Obispo County. Freshwater recharge to the basin comes primarily from seepage of surface flows in Los Osos Creek, deep percolation of precipitation, and residential/agricultural return flows. Sea water intrusion is also a significant component of basin inflow under current conditions.

Supply Aquifers. Unconsolidated sediments forming the basin include Holocene alluvial deposits in the creek valley and dune sands between the creek valley and the coast, the Plio-Pleistocene age Paso Robles Formation, and the Pliocene age Careaga Formation. The basin is generally characterized as having five (5) zones. The upper aquifer (Zone C) reaches 200 feet thick along a synclinal axis which trends northwest to southeast through the middle of the basin, rising to the southeast. The lower aquifer (Zones D and E) is up to several hundred feet thick adjacent to the main strand of the Los Osos fault. There is also a perched aquifer less than 50 feet thick in the dune sands west of the Los Osos Creek valley (Zone B), and a shallow alluvial aquifer typically 70 feet thick in the creek valley (Zone A). The lower aquifer extends beneath the alluvial aquifer in the creek valley (Yates and Wiese, 1988; Cleath & Associates, 2005, ISJ Working Group, 2010).

Water Users. Basin groundwater users in the Los Osos Valley basin include Golden State Water Company, S&T Mutual, the Los Osos Community Services District, and overlying private well users. The three local water purveyors, along with the County of San Luis Obispo, are currently preparing a Basin Management Plan (BMP) under a court-approved Interlocutory Stipulated Judgment (ISJ Working Group).

Basin Yield. Estimates of the safe yield of the groundwater basin have been developed for the current condition, with existing septic systems in place, and assuming no new water development. The safe yield estimate of the basin under current conditions is 3,200 AFY (ISJ Working Group, 2010). Through the development of a BMP, it is the goal, among others, of the ISJ Working Group, to "provide for a continuously updated hydrologic assessment of the Basin, its water resources and safe yield."

Water Quality. Upper aquifer general mineral character is typically sodium-magnesium chloride-bicarbonate. TDS concentrations are generally between 200 mg/l and 400 mg/l. Nitrate is the primary constituent of concern in the upper aquifer, with concentrations in excess of the State drinking water standard of 45 mg/l as nitrate in shallow monitoring wells throughout the urban area (Cleath & Associates, 2005, 2006a, 2006b).

Lower aquifer general mineral character ranges from magnesium-calcium bicarbonate near Los Osos Creek to sodium chloride where impacted by sea water intrusion on the west side of the basin. TDS concentrations also vary significantly by location, and have been reported at up to 950 mg/l in west side supply wells, although average values in the urban area are closer to 500 mg/l. Sea water intrusion is the main concern for lower aquifer water quality (Cleath & Associates, 2005; GSWC, 2009).

Water Availability. The primary constraint on water availability in the Los Osos groundwater basin is deteriorating water quality due to sea water intrusion and nitrate contamination. The County of San Luis Obispo has certified that the basin is currently at a Level III severity rating (resource capacity has been met or exceeded) due to sea water intrusion. Through the development of the BMP, the ISJ Working Group will be evaluating and identifying the management strategies to implement, in coordination with the County's wastewater project, in order to improve conditions in the Basin.

SOUTH COAST SUB-REGION

The South Coast sub-region is comprised of four Water Planning Areas, including San Luis Obispo/Avila (WPA 6), South Coast (WPA 7), Huasna Valley (WPA 8), and Cuyama Valley (WPA 9). A brief description of the basins within each WPA is provided below, with details on groundwater supply aquifers, groundwater users, basin yield, water quality, and water availability.

San Luis Obispo/Avila WPA 6

The San Luis Obispo Valley groundwater basin is the only DWR-designated basin in WPA 6 of the South Coast sub-region (Figure 2.4). A rise in bedrock south of the San Luis Obispo Airport has created two separate subsurface drainage systems, which were designated as the San Luis Valley and Edna Valley subbasins in a draft 1997 DWR study. The extension of the San Luis Obispo Creek alluvial deposits between the Los Osos Valley Fault and the Pacific Ocean has been added herein as the Avila Valley Subbasin. The San Luis Valley and Avila Valley subbasins of the San Luis Obispo Valley groundwater basin are in WPA 6, while the Edna Valley subbasin is in WPA 7.

San Luis Obsipo Valley Basin

The San Luis Obispo Valley groundwater basin is part of WPA 6 and WPA 7 in the South Coast sub-region and encompasses approximately 13,800 acres (21.6 square miles), including the newly defined Avila Valley subbasin (Figure 2.4). The two larger subbasins underlie the San Luis and Edna Valleys and are bounded on the northeast by the Santa Lucia Range and on the southwest by the San Luis Range and the Los Osos and Edna faults. The San Luis Valley (WPA 6) and Edna Valley (WPA 7) subbasins comprise Basin 3-9 as defined by the DWR (DWR, 1997; 2003). Bedrock underlying the two larger subbasins is comprised of non-water bearing Cretaceous-Jurassic age Franciscan Formation. Tertiary age sedimentary and volcanic rocks rim the northeastern watershed and the Coastal Hills and are the source of spring flows into the basin. The Edna subbasin (approximately 4,700 acres) is entirely within unincorporated San Luis Obispo County, while the San Luis Valley subbasin (approximately 8,000 acres) includes both unincorporated County and the City of San Luis Obispo.

The Avila Valley subbasin (WPA 6) encompasses approximately 1,100 acres along the San Luis Obispo Creek floodplain between the Los Osos Valley fault and the Pacific Ocean, a distance of close to 7 miles. The subbasin is bounded and underlain by Mio-Pliocene rocks forming the western end of the Pismo Syncline and is entirely within unincorporated San Luis Obispo County. If the District requires more current or detailed information for this basin, specific studies would be necessary. In preparation for any future studies, the District or other agency could begin collecting available information (such as well logs, pump information, or water quality data) from private and public sources to facilitate future work.

San Luis Valley Subbasin

Supply Aquifer. The San Luis Valley subbasin is generally shallower than the Edna Valley subbasin. Water supply aquifers are mostly within the Holocene alluvial deposits and underlying Plio-Pleistocene Paso Robles Formation, with a few productive wells tapping Tertiary marine sands near Highway 101 and Los Osos Valley Road. The younger alluvial deposits are comprised mostly of clay and clayey/silty sands with permeable sand and gravel strata that are typically a few feet thick. These alluvial deposits are up to 60 feet deep and directly overlie bedrock in the western and northern areas of the basin. The Paso Robles Formation deposits, which are difficult to distinguish locally from the younger alluvium, extend the base of permeable sediments to depths of up to 150-200 feet below ground surface along the basin's southwest boundary. Permeable marine sands with seashells are logged between depths of 155 and 172 feet at a well on Calle Joaquin (Boyle, 1991; DWR 1997). Recharge to the basin comes primarily from seepage of surface flows in San Luis Obispo Creek and tributaries (including

discharges from the City of San Luis Obispo Water Reclamation Facility), deep percolation of precipitation, and residential/agricultural return flows.

Water Users. Subbasin groundwater users include the City of San Luis Obispo, California State Polytechnic University, San Luis Coastal Unified School District, Chevron, close to two dozen small public water systems serving various commercial, industrial, and residential properties, agricultural growers, and private residences.

Subbasin Yield. The safe yield of the entire San Luis Valley groundwater basin was determined in a 1991 study based on elements of recharge and discharge, and in a 1997 study using elements of recharge and discharge, the length of the drought periods and the recovery time following them, and an assessment of the behavior of the basin. The 1991 study reported a value of sustained yield of the entire basin under existing conditions at 5,900 AFY. The 1997 DWR study reported a long-term dependable yield value for the San Luis Valley subbasin at 2,000-2,500 AFY, and a long-term dependable yield value for the Edna Valley subbasin at 4,000-4,500 AFY. DWR's 1997 study remains in draft form, but is the only yield estimate that separates the two main basin areas. Therefore, the lower values from the 1997 study, which total 6,000 AFY and closely match the 1991 study value, are selected for County planning purposes. In summary, the safe yield of the groundwater basin is estimated at 6,000 AFY, of which 2,000 AFY is assigned to the San Luis Valley subbasin, and 4,000 AFY to the Edna Valley portion (Boyle, 1991; DWR 1997).

Water Quality. The general mineral character of groundwater in the San Luis Valley subbasin is typically magnesium bicarbonate, becoming magnesium chloride-bicarbonate near Santa Fe Road and the San Luis Obispo County airport. TDS concentrations ranged from 320-630 mg/l (480 mg/l average) in six basin wells tested in 1988. Water quality problems vary by location within the basin, with nitrates, salinity, hardness, and perchloroethylene (PCE) historically being the constituents of greatest concern. PCE contamination was a major issue for two wells used by the City of San Luis Obispo during the period from 1987-91. Two high-capacity wells were also shut down in the 1990's due to elevated nitrate concentrations. Hardness and TDS/chloride are more of a concern in the airport area (Cleath, T. S., 1987, 1988; Boyle, 1991).

Water Availability. The primary constraints on water availability in the San Luis Valley subbasin include physical limitations, water quality issues, and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. Another physical limitation is the potential for subsidence in some areas due to the dewatering and compaction of clays. Elevated nitrates are a constraint for drinking water availability at some of the City of San Luis Obispo wells. Steelhead habitat protection in San Luis Obispo Creek would also be a potential constraint on groundwater availability. Wastewater discharges from the City of San Luis Obispo Water Reclamation Facility enter San Luis Obispo Creek near the Los Osos Valley Road overpass. Most of this water originates as imported water and provides additional recharge to wells downstream and to the riparian habitat.

Avila Valley Subbasin

Supply Aquifer. Downstream of the Los Osos Valley fault, the San Luis Valley groundwater basin follows the alluvial deposits of San Luis Obispo Creek and tributaries to the

ocean at Avila Beach. These alluvial deposits are typically less than 60 feet deep and are comprised of river gravel and sand beds overlain by floodplain silts and sands.

Underlying the alluvial deposits are Franciscan Formation rock and, downstream of the confluence of Davenport Creek, sedimentary and volcanic beds of Tertiary age. Within these older sedimentary and volcanic beds underlying the main groundwater bearing alluvial deposits, groundwater occurs in sandstones, shales and volcanic rocks. Wells in the alluvium produce as much as several hundred gallons per minute. Wells in the underlying older sedimentary and volcanic beds may produce more than 100 gallons per minute. Some of these deep wells produce warm water in the vicinity of Sycamore Mineral Springs and San Luis Bay Estates. Where these bedrock units occur downstream of the weir and along the coast, brackish or sea water may be encountered.

Water Users. Avila Valley MWC and San Miguelito MWC produce water from the Avila Valley Basin as do the agricultural and private water wells of overlying users in the valley.

Basin Yield. No basin yield numbers have been published.

Water Quality. The alluvium extends out to the ocean but the fresh water portion of the alluvium is upstream of the Marre weir at San Luis Bay Estates. Prior to installation of this weir in the early 1970's, seawater intrusion had occurred as far up the valley as the confluence with See Canyon Creek. Since the installation of the weir and with the supplemental flow from the City of San Luis Obispo wastewater treatment plant, there has not been any seawater intrusion documented upstream of the weir. General mineral character in the alluvial groundwater upstream of the Marre weir is sodium-magnesium bicarbonate, with TDS concentrations averaging close to 700 mg/l in the late 1970's (J.M. Montgomery, 1982).

Water Availability. The primary constraints on water availability in the Avila Valley basin are physical limitations and environmental demand. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. Releases from the City of San Luis Obispo Water Reclamation Facility into San Luis Obispo Creek significantly offset storage losses during drought, but are also intended to support steelhead habitat. Below the Marre Weir, sea water intrusion is the primary constraint to water availability.

South Coast WPA 7

Groundwater basin descriptions in WPA 7 include the Edna Valley subbasin of the San Luis Obispo Valley groundwater basin, along with with three subbasins and three management areas of the Santa Maria Valley groundwater basin. Pismo Creek Valley, Arroyo Grande Valley, and Nipomo Valley are DWR-defined subbasins of the Santa Maria Valley groundwater basin (DWR, 2002). The Northern Cities, Nipomo Mesa, and Santa Maria Valley Management Areas are court-defined areas within the adjudicated boundary of the Santa Maria Valley Groundwater Basin (Figure 2.4).

Edna Valley Subbasin

The Edna Valley subbasin is part of WPA 7, rather than WPA 6, because surface and subsurface flow drains into the Santa Maria Valley groundwater basin (Figure 2.4).

Supply Aquifer. Aquifers within the Edna Valley subbasin include Holocene alluvial deposits the Plio-Pleistocene Paso Robles Formation and underlying Tertiary marine sands and shell beds. These basin materials are collectively thicker than basin strata in the San Luis Valley portion, reaching depths of over 300 feet (Boyle, 1991; DWR 1997). Recharge to the basin comes primarily from seepage of surface flows (Davenport Creek, West Corral de Piedra Creek, East Corral de Piedra Creek, and Cañada Verde), deep percolation of precipitation, and residential/agricultural return flows.

Water Users. Subbasin groundwater users include Golden State Water Company, San Luis Country Club (golf course), a few small public water systems, agricultural growers, and private residences.

Subbasin Yield. The estimated safe yield of the subbasin is 4,000 AFY (DWR, 1997; see San Luis Valley subbasin for additional details).

Water Quality. The general mineral character of groundwater in the Edna Valley subbasin is magnesium-calcium bicarbonate with a TDS range of 630-780 mg/l (average 690 mg/l), based on public water company testing during 2008. This is consistent with surface water samples collected in 2007 from tributaries to Pismo Creek in the Edna Valley, where the water was magnesium-calcium bicarbonate with 500-800 mg/ TDS (Balance Hydrologics, 2008; GSWC, 2009).

Water Availability. The primary constraints on water availability in the Edna Valley portion of the basin are physical limitations and environmental demand. Lowering groundwater levels due to production in the basin may impact base flows to Pismo Creek, which support steelhead habitat.

Santa Maria Valley Basin

The Santa Maria Valley groundwater basin is part of WPA 7 in the South Coast sub-region (Figure 2.4). There are two boundaries currently in use for the Santa Maria Valley groundwater basin, one defined by the California DWR, and one defined by the Superior Court of California. The court-defined boundary was developed by a technical committee for use in basin adjudication. This Master Water Plan divides the basin into the court-defined management areas but also includes sections on three alluvial valleys (Pismo Creek Valley, Arroyo Grande Valley, and Nipomo Valley) within the DWR-defined basin that are outside of the adjudicated area. These three alluvial valleys are referred to herein as subbasins as defined by a 2002 DWR study of the area.

The Santa Maria Valley groundwater basin (DWR boundary, including subbasins) encompasses approximately 184,000 acres (288 square miles), of which approximately 61,220 acres (95.7 square miles) are part of the South Coast sub-region within San Luis Obispo County (Figure 2.4). This groundwater basin underlies the Santa Maria Valley in the coastal portion of northern Santa Barbara and southern San Luis Obispo Counties. The basin also underlies Nipomo and Tri-Cities Mesas, Arroyo Grande Plain, with subbasins in the Nipomo, Arroyo Grande and Pismo Creek Valleys. The basin is bounded on the north by the San Luis and Santa Lucia Ranges, on the east by the San Rafael Mountains, on the south by the Solomon Hills and the San Antonio Creek Valley Groundwater Basin, on the southwest by the Casmalia Hills, and on the west by the Pacific Ocean. In addition, three subbasins have been identified in San Luis Obispo County

that are separated from the main basin by the Wilmar Avenue fault. These are the Pismo Creek Valley (1,220 acres), Arroyo Grande Valley (3,860 acres), and Nipomo Valley (6,230 acres) subbasins. The Santa Maria Valley is designated by the DWR as Basin 3-9 (DWR 2002, 2003).

The Santa Maria Valley groundwater basin has been adjudicated. In 2005, the Superior Court of California entered a Stipulated Judgment for a basin-wide groundwater litigation case that defined three basin management areas encompassing approximately 256 square miles. These management areas are the Northern Cities Management Area, the Nipomo Mesa Management Area, and the Santa Maria Management Area, which are used herein for planning by the County of San Luis Obispo. The Stipulated Judgment was adopted, with a declaratory judgment and physical solution adjudged and decreed in the Judgment after Trial, dated January 25, 2008. The three DWR subbasins included herein as separate basin components are outside of the adjudicated area.

The San Luis Obispo County portion of the Santa Maria Valley Management Area and the Nipomo Mesa Management Area are in unincorporated County. The Northern Cities Management Area includes unincorporated County areas and the Cities of Pismo Beach, Arroyo Grande and Grover Beach. The City of Arroyo Grande also overlies a portion of the Arroyo Grande subbasin, and the City of Pismo Beach overlies a portion of the Pismo Creek Valley subbasin. Main basin management areas and subbasins are shown in Figure 2.4.

Pismo Creek Valley Subbasin

The Pismo Creek Valley subbasin is part of the Santa Maria Valley groundwater basin as defined by the DWR, but outside of the adjudicated basin area.

Supply Aquifers. Water supply aquifers are within Holocene alluvial deposits in Price Canyon, which is drained by Pismo Creek and its tributaries. The alluvium varies between 200 and 1,500 feet wide and is up to 60-70 feet thick, composed of basal sand and gravel locally interbedded with clay layers (Cleath, 1986; DWR, 2002; Fugro, 2009). Recharge to the subbasin comes primarily from seepage from Pismo Creek and tributaries, from deep percolation of precipitation, and subsurface inflow from the Edna Valley subbasin.

Water Users. Subbasin groundwater users include residential and agricultural overlying users. Plains Exploration & Production Company (Oil Field) groundwater supply wells are not located in the subbasin.

Subbasin Yield. The yield of the alluvial basin in the Spanish Spring ranch area has been estimated at 200 AFY, although this is before any consideration for environmental habitat demand (Fugro, 2009). Additional yield would be available from wells tapping the alluvium downstream of Spanish Springs Ranch, below the confluence of Las Cuevitas Creek, which drains the Indian Knob area. There is no estimate of the basin-wide yield.

Water Quality. Results of six groundwater samples collected from subbasin wells in 1999 indicate magnesium bicarbonate and magnesium sulfate-bicarbonate are the dominant water types, with a median TDS of 620 mg/l. One well exceeded the State drinking water standards for TDS and sulfate, and most of the wells also had iron and/or manganese concentrations above the drinking water standards (Fugro, 2009).

Water Availability. The primary constraints on water availability in the Pismo Creek Valley subbasin are physical limitations and environmental demand. The shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. Steelhead habitat protection in Pismo Creek and tributaries would also be a potential constraint on groundwater availability.

Arroyo Grande Valley Subbasin

The Arroyo Grande Valley subbasin is part of the Santa Maria Valley groundwater basin as defined by the DWR, but outside of the adjudicated basin area.

Supply Aquifers. Water supply aquifers are within Holocene alluvial deposits in Arroyo Grande Valley, which is drained by Arroyo Grande Creek. The alluvial deposits reach approximately 100 feet thick (DWR, 2002). Recharge to the subbasin comes primarily from seepage from Arroyo Grande Creek (including Lopez Reservoir releases) and tributaries, deep percolation of precipitation, and residential/agricultural return flows.

Water Users. Subbasin groundwater users include small public water systems (residential, commercial, and County park), and agricultural and residential overlying users.

Subbasin Yield. There is no estimated safe yield or existing developed yield value reported for this subbasin. Groundwater levels in the Arroyo Grande Creek alluvium downstream of Lopez Dam are controlled by releases from Lopez reservoir, and have been fairly stable since 1969 (DWR, 2002).

Water Quality. Historical groundwater quality in the Arroyo Grande Valley Subbasin, based on samples collected in the 1980's, shows a progressive deterioration in a downstream direction. The general mineral character of groundwater in the valley was calcium-magnesium bicarbonate upstream of the Tar Springs Creek confluence and calcium-magnesium sulfate downstream of the confluence. The downstream section overlies a zone of multiple faults that may contribute highly mineralized water, along with irrigation water returns. With one exception, TDS, sulfate, and chloride concentrations in groundwater samples from wells in the upstream section met drinking water standards and the water was classified as suitable for agricultural irrigation. In the downstream section, TDS from wells typically exceeded 1,500 mg/l (the short term maximum drinking water standard), with sulfate concentrations exceeding the 500 mg/l upper limit for drinking water. The water was also classified as marginal to unsuitable for agricultural irrigation (DWR, 2002).

Water Availability. The primary constraints on water availability in the Arroyo Grande Valley subbasin are water quality issues, environmental demand, and water rights. Although shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, releases from Lopez Reservoir provide greater dry period recharge than would otherwise exist. Groundwater quality in the lower subbasin is marginal to poor, and steelhead habitat is present in Arroyo Grande Creek. The legal framework for Lopez Reservoir releases, downstream monitoring, and surface water allocations could also limit groundwater availability.

Nipomo Valley Subbasin

The Nipomo Valley subbasin is part of the Santa Maria Valley groundwater basin as defined by the DWR, but outside of the adjudicated basin area.

Supply Aquifers. Subbasin water supply aquifers are limited to the older alluvium, which covers the floor of the valley up to approximately 90 feet thick, thinning to negligible thickness toward the eastern edges of the subbasin. This older alluvium continues to supply some wells, although bedrock formations underlying the alluvium have, over time, become a more important source of groundwater supply (DWR, 2002). Recharge to the subbasin comes primarily from seepage from Nipomo Creek, from deep percolation of precipitation, and residential/agricultural return flows.

The fractured rock reservoirs that lie beneath the alluvial deposits are within the Monterey Formation and the Obispo Formation. These formations cover a much larger area than the subbasin limits, although the aquifer zones, which are defined by fracture permeability, are typically associated with particular strata and may be structurally complex.

Water Users. Subbasin groundwater users include residential and agricultural overlying users. The Nipomo Community Services District operated wells within the boundaries of the subbasin, but these wells tap the deeper fractured rock reservoirs.

Subbasin Yield. There is no existing estimate for the perennial yield of this subbasin.

Water Quality. Water quality is variable across the subbasin, and the available data set does not distinguish between older alluvial wells and fractured rock wells, although most of the water represented is from the fractured rock reservoirs. TDS concentrations in groundwater samples collected from in 22 wells between 1962 and 2000 ranged from 750 mg/l to 1,300 mg/l; sulfate concentrations between 200 and 340 mg/l; chloride concentrations between 64 and 130 mg/l; and nitrate concentrations from non-detected to 3.4 mg/l. Groundwater is classified as suitable to marginal under water quality guideline for irrigated agriculture (DWR, 2002).

Water Availability. The primary constraints on water availability in the Nipomo Valley subbasin are physical limitations and water quality. The shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. In the Nipomo Valley they also overlie and recharge fractured rock aquifers, and would experience declines in water levels and production during dry periods. Water availability in the fractures rock reservoirs can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge. Water quality results indicate that State drinking water standards are exceeded at some wells.

Northern Cities Management Area

The Northern Cities Management Area is part of the Santa Maria Valley groundwater basin adjudicated area.

Supply Aquifers. Water supply aquifers are within alluvial deposits, the Paso Robles Formation, the Careaga Formation and the Pismo Formation. The alluvium is tapped by wells in the Arroyo Grande Plain, where it reaches a maximum thickness of 130 feet. Pleistocene and

older deposits are uplifted to the north across the Oceano and Santa Maria River faults. The Paso Robles Formation ranges from approximately 150-500 feet thick across the management area. The Careaga Formation is up to 300 feet thick south of the Santa Maria River fault, and absent north of the fault, where the Pismo Formation underlies the Paso Formation, reaching thicknesses of close to 600 feet along the coast (DWR 2002; Todd, 2007). Recharge to the management area comes primarily from seepage from Arroyo Grande Creek (including releases from Lopez Reservoir), from deep percolation of precipitation (includes storm water infiltration basins), subsurface inflow from the Nipomo Mesa with underflow from Pismo Creek, Meadow Creek, Arroyo Grande Creek, and Los Berros Creek alluvium, and residential/agricultural return flows.

Water Users. Basin groundwater users in the Northern Cities Management Area include City of Pismo Beach, City of Arroyo Grande, City of Grover Beach, Oceano Community Services District, small public water systems (including Halcyon Water System), Lucia Mar Unified School District, and residential and agricultural overlying users.

Area Yield. The safe yield of the DWR's Tri-Cities Mesa – Arroyo Grande Plain Hydrologic Subarea, reported as dependable yield, and was estimated between 4,000 AFY and 5,600 AFY prior to the formal establishment of the Northern Cities Management Area (DWR, 2002). A 2007 Water Balance Study for the management area estimated total average annual recharge at 8,535 AFY, and an average annual groundwater production of 5,569 AFY between 1986 and 2004 without detectable sea water intrusion, supporting the DWR's 5,600 AFY safe yield value estimate (Todd, 2007). The 2002 Groundwater Management Agreement (the "gentlemen's agreement") between the Northern Cities (with Oceano CSD) allocates an assumed safe yield of 9,500 AFY between basin users in this area, including 5,300 AFY for applied irrigation, 200 AFY for basin outflow, and 4,000 AFY for the urban allotment as follows:

- City of Arroyo Grande: 1,202 AFY
- City of Grover Beach: 1,198 AFY
- City of Pismo Beach: 700 AFY
- Oceano Community Services District: 900 AFY

The 9,500 AFY yield value was reportedly based on the 1979 DWR groundwater study for the Arroyo Grande area, although this value originated as the maximum estimated safe seasonal yield for the Arroyo Grande Subunit in the 1958 DWR report. The 2008 Annual Report for the Northern Cities Management Area acknowledges the historical 9,500 AFY yield value, but indicates that the allocation for basin outflow of 200 AFY is unreasonably low, and that the current subsurface outflow of 2,700-3,000 AFY has helped prevent seawater intrusion (Todd, 2009). Since subsurface basin outflow should not be included in a safe yield estimate, a range of 5,600-6,800 AFY represents the current best estimate for the perennial yield of the Northern Cities Management Area. According to the California Superior Court Judgment after Trial (2008) the Northern Cities have a right to produce 7,300 acre-feet from the basin.

Water Quality. Groundwater in the Tri-Cities Mesa portion of the Northern Cities Management Area (north of the Arroyo Grande Plain) is typically calcium bicarbonate-sulfate in general mineral character, based on data from 1992-2000, with a median TDS value of 650 mg/l. Six of 35 wells tested exceeded the State drinking water standard for nitrate, which has been a concern in the area. In the Arroyo Grande Plain, historical data between 1950 and 1987 indicate that the chemical character was typically either calcium magnesium sulfate or calcium-magnesium sulfate-bicarbonate. Approximately three-quarters of the wells sampled on the

Arroyo Grande Plain had TDS values between 500-1,500 mg/l, with half the wells reporting sulfate concentrations greater than 250 mg/l (DWR, 2002).

Water Availability. Water availability in the Northern Cities Management Area is primarily constrained by water quality issues and water rights. Basin sediments in the management area extend offshore along several miles of coastline, where sea water intrusion is the greatest potential threat to the supply. Low coastal groundwater levels indicated a potential for seawater intrusion that was locally manifested in sentry wells 32S/13E N02 and N03 in 2009 after 3 dry years, with levels and water quality improving after an average rainfall year in 2010. The major purveyors have agreed to share the water resources through a cooperative agreement that also sets aside water for agricultural use and for basin outflow, although the amount allocated for basin outflow has been deemed unreasonably low (Todd, 2007).

Nipomo Mesa Management Area

The Nipomo Mesa Management Area is part of the Santa Maria Valley groundwater basin adjudicated area.

Supply Aquifers. Water supply aquifers are within Holocene and Pleistocene dune sands, the Pliocene-Pleistocene Paso Robles Formation, and the Pliocene Careaga Formation (NMMA, 2008). DWR basin descriptions also include the Pliocene Pismo Formation (DWR, 2002). Dune sands forming the Nipomo Mesa reach a maximum thickness of close to 300 feet, although most of the sand is unsaturated. The Paso Robles Formation in this area is up to 600 feet thick south of the northwest-southeast trending Oceano fault, but has been uplifted and eroded to approximately 200 feet thick north of the fault. Further north beneath the Nipomo Mesa, the Paso Robles Formation is also uplifted across the Santa Maria River fault, becoming 100-150 feet thick north of the fault. Careaga Formation sands, which are approximately 200-300 feet thick beneath the Nipomo Mesa, are also uplifted to the north across the Oceano fault, and are completely missing north of the Santa Maria River fault. Pismo Formation sands are interpreted to underlie the Paso Robles Formation north of the Santa Maria River fault (DWR, 2002).

A third fault that affects geologic structure and the movement of groundwater in the Northern Cities Management Area and may be present in the NMMA area is the Wilmar Avenue fault. This fault may extend south of Arroyo Grande along the front of the San Luis Range and the northeast margin of NMMA to the northern part of Santa Maria Valley, where it may truncate against the Santa Maria River fault. Along this segment, the fault is inferred by the alignment of subtle geomorphic and geologic features, including a straight segment of Nipomo Creek (NMMA Technical Group, 2009 *after* DWR, 2002).

The NMMA has defined a Shallow Aquifer and a Deep Aquifer. The Shallow Aquifer within the NMMA is considered to be an unconfined aquifer. There may also be perched aquifers above local clay beds (perched aquifers are unconfined aquifers where the aquifer material below the clay bed is unsaturated). Unconfined aquifers intercept downward percolating water. Where the Deep Aquifer is present beneath a confining layer, then the Deep Aquifer is considered to be confined (NMMA Technical Group, 2009). Recharge to the management area comes primarily from deep percolation of precipitation, subsurface inflow from the Santa Maria Valley, and residential/agricultural return flows.

Water Users. Basin groundwater users in the Nipomo Mesa Management Area include Golden State Water Company, Rural Water Company, Woodlands, Conoco Phillips, Nipomo Community Services District, Lucia Mar Unified School District, small public water systems (serving residential, industrial and nursery/greenhouse operations), and commercial, agricultural and residential overlying users.

Area Yield. The safe yield of the DWR's Nipomo Mesa Hydrologic Subarea, reported as dependable yield, was estimated between 4,800 AFY and 6,000 AFY prior to the formal establishment of the Nipomo Mesa Management Area (DWR, 2002). The first Annual Report for the Nipomo Mesa Management Area does not list safe yield, but estimates total recharge at 7,300 AFY, being the sum of 5,700 AFY deep percolation of precipitation and 1,600 AFY subsurface inflow (NMMA Technical Group, 2009).

Water Quality. Water quality varies in general mineral character across the Nipomo Mesa. North of Black Lake Canyon, sodium is the dominant cation in many wells, and chloride or bicarbonate the dominant anion. South of the canyon, calcium sulfate and calcium-sodium bicarbonate is more common. The median TDS in 35 wells sampled between 1990 and 2000 was approximately 500 mg/l. Nitrate has been detected in excess of the drinking water standard in relatively few wells (DWR, 2002; NMMA Technical Group, 2009).

According to the database maintained by DPH, production wells used for public drinking and industrial use in the NMMA met drinking water quality standards in 2008. One of the ConocoPhillips production wells had a reported value of 1000 mg/l Total Dissolved Solids (TDS), the highest reported to the Department of Public Health within the NMMA; the well is used for industrial processing (NMMA Technical Group, 2009).

Water Availability. The primary constraints on water availability in the Nipomo Mesa Management Area would be physical limitations to the east, water quality on the west, and water rights. The base of permeable sediments rises toward the eastern boundary of the area, reducing groundwater in storage and increasing the susceptibility of wells to drought impacts and associated water level declines. To the west, where deeper sediments allow for greater storage fluctuations, sea water intrusion would limit the available fresh water.

The Nipomo Mesa area is currently in a certified Level of Severity III for water supply (resource capacity has been met or exceeded), as defined by San Luis Obispo County. The County's Level of Severity III led to the preparation of a water conservation ordinance (SLO County Code, Title 8 Chapter 8.92, effective September 25, 2008).

The NMMA Technical Group has established a groundwater monitoring plan that uses coastal and inland key wells to assess the condition of the basin. The 2008 Annual Report indicates that a potentially severe water shortage condition exists. This condition calls for voluntary actions under a response plan, with recommendations to draft a Well Management Plan and a conceptual plan to identify specific actions to be taken (NMMA Technical Group, 2009).

Santa Maria Valley Management Area

The Santa Maria Valley Management Area is part of the Santa Maria Valley groundwater basin adjudicated area.

Supply Aquifers. Water supply aquifers are within Holocene alluvial deposits, the Plio-Pleistocene Paso Robles Formation, and the Pliocene Careaga Formation. The younger alluvial deposits are comprised of poorly bedded, poorly sorted to sorted sand, gravel, silt, and clay, with cobbles and boulders. These alluvial deposits are up to 230 feet thick beneath the Santa Maria River. The Paso Robles Formation deposits were deposited under a variety of conditions, ranging from fluvial and estuarine-lagoonal in inland areas to nearshore marine at the coast, and consequently exhibit a wide range of lithologic character and texture. The formation typically includes unconsolidated to poorly consolidated mixtures of shale gravel, sand, silt and clay, reaching up to 700 feet thick at the southern County border along the Santa Maria River. The Careaga Formation is a late Pliocene, shallow-water marine deposit comprised mostly of sand that also reaches a thickness of close to 700 feet beneath the Santa Maria Plain (DWR, 2002). Recharge to the management area comes primarily from seepage of surface flows in the Santa Maria River (including releases from Twitchell reservoir), deep percolation of precipitation, and residential/agricultural return flows.

Water Users. Basin groundwater users in the San Luis Obispo County portion of the Santa Maria Valley Management Area consist primarily of agricultural overlying users, with some residential overlying users and a small public water system.

Area Yield. The Santa Maria Valley, most of which is in Santa Barbara County, provided 124,000 AFY of average annual production to wells over a perennial yield study period without sea water intrusion or a decline in groundwater levels and storage (Luhdorff & Scalmanini, 2000). The 2008 Annual Report for the Management Area estimated 125,100 acre-feet of groundwater production in the basin for 2008, with no indications of severe water shortage (Luhdorff & Scalmanini, 2009). Safe Yield in the San Luis Obispo County portion of the Santa Maria Valley, reported as dependable yield, was estimated between 11,100 AFY and 13,000 AFY prior to the formal establishment of the Santa Maria Valley Management Area (DWR, 2002).

Water Quality. Most of the groundwater in the San Luis Obispo County portion of the Santa Maria Valley Management Area may be characterized as a calcium-magnesium sulfate type. Sulfate and TDS are the primary constituents of concern. TDS concentrations collected in four area wells between 1992 and 1998 ranged from approximately 750 mg/l to 1,300 mg/l, with a median of 1,200 mg/l, which exceeds the State drinking water standard upper limit of 1,000 mg/l. All the sulfate concentrations exceeded the recommended drinking water standard of 250 mg/l and some exceeded the upper limit of 500 mg/l. TDS was up to 800 mg/l greater in the Holocene alluvial aquifer, as compared to the underlying Paso Robles Formation aquifers. Nitrates are also a concern in several areas of the valley, although the majority of groundwater sample results in the San Luis Obispo County portion of the valley are below drinking water standards. (DWR, 2002).

Water Availability. The primary constraint on water availability in the San Luis Obispo County portion of the San Maria Valley Management Area would be water quality and water rights. A natural outflow of fresh water must be maintained, both in the deeper aquifer zones where sea water pressures are greatest, and in the shallow alluvial zones where irrigation returns are concentrated. The operation of Twitchell reservoir and the Superior Court Stipulated Judgment and Judgment after Trial affect groundwater availability.

Huasna Valley WPA 8

Huasna Valley is the only groundwater basin in WPA 8.

Huasna Valley Basin

The Huasna Valley groundwater basin is part of the South Coast sub-region (Figure 2.4) and encompasses approximately 4,700 acres (7.3 square miles). The basin is bounded by Miocene age marine rock and underlies valleys drained by two branches of Huasna Creek which flow to Twitchell reservoir. Huasna Valley has been designated as Basin 3-45 and is entirely within unincorporated San Luis Obispo County (DWR, 2003). Recharge to the subbasin comes primarily from seepage from Huasna River and tributaries, deep percolation of precipitation, residential/agricultural return flows, and from Twitchell reservoir seepage when the reservoir fills the lower valley.

There is limited hydrogeologic information published for this basin. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. The basin aquifer consists of Quaternary alluvial deposits drained by Huasna Creek and Huasna River (DWR, 2003). Local groundwater development, however, is primarily within underlying sandstone beds, but also within fractured siliceous or calcareous shales. The sandstone units are located within the Phoenix and Saucelito members of the Santa Margarita Formation (Oasis Associates, 2009).

Water Users. Basin water users are residential and agricultural overlying users.

Basin Yield. There is no existing estimate of basin safe yield or hydrologic budget items.

Water Quality. No historical water quality data for the alluvial basin has been published in public documents or is available through the STORET Legacy Database.

Water Availability. Constraints on water availability in the Huasna Valley basin include both physical limitations and water quality issues. Shallow alluvial deposits are typically more susceptible to drought impacts than deeper formation aquifers, having less groundwater in storage and consequently less capacity for resource utilization and banking. In the Huasna Valley they also overlie and recharge sandstone aquifers, and would experience declines in water levels and production during dry periods, except where recharged from surface waters in Twitchell reservoir. Water availability in the sandstone and fractured reservoirs can be highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Cuyama Valley WPA 9

Cuyama Valley is the only groundwater basin in WPA 9.

Cuyama Valley Basin

The Cuyama Valley groundwater basin is part of the South Coast sub-region (Figure 2.5) and encompasses approximately 147,200 acres (230 square miles), of which approximately 32,600 acres (51 square miles) are within San Luis Obispo County. The basin underlies the valley drained by the Cuyama River and is bounded on the north by the Caliente range and on the Southwest by the Sierra Madre Mountains. Cuyama Valley has been designated as Basin 3-13 and includes portions within unincorporated San Luis Obispo County, Santa Barbara County, Kern County, and Ventura County (DWR, 2003). Recharge to the basin comes primarily from seepage from Cuyama River, deep percolation of precipitation, and residential/agricultural return flows.

Supply Aquifers. The aquifer consists of Holocene alluvial deposits and older terrestrial deposits. In the western part of the basin, the alluvium consists of thick beds of sand and gravel alternating with beds of clay. In the south central part of the basin, alluvium is predominantly comprised of sand and silt with some beds of gravel and clay. In the eastern part of the basin, alluvium consists of coarse gravel and sand. Except in the western part of the basin, the alluvium is not the principal water-bearing formation. The thickness of the alluvium is inferred to be from 150 to 250 feet (DWR 2003 after Upson and Worts 1951). Pleistocene age terrace deposits found in the valley are relatively thin and mainly above the zone of saturation. Underlying older terrestrial deposits, which include the Pliocene age Cuyama or Morales formation and a fanglomerate, are the main water-bearing units in the basin. These deposits consist of large and extensive bodies of poorly consolidated clay, silt, and gravel (DWR 2003 *after* Upson and Worts 1951).

Water Users. Basin groundwater users in the San Luis Obispo portion of the basin include oil field operators and residential/agricultural overlying users.

Basin Yield. Perennial yield for the entire basin has been estimated between 9,000 and 13,000 AFY (Upson and Worts, 1951). The long-term potential recharge of the basin was estimated between 12,000-16,000 AFY, with an average of 13,000 AFY year (Singer and Swarzenski, 1970). A safe yield of 10,667 AFY gross (8,000 AFY net consumptive use) was estimated in 1992 (Baca et al., 1992). The most recent compilation of hydrologic budget information presents a groundwater budget in which total groundwater pumpage is 40,592 AFY, resulting in a deficit of 30,532 AFY (Anderson et al, 2009). This hydrologic budget compilation indicates a perennial yield on the order of 10,000 AFY, which is within the range of prior work. There is no separate yield estimate for the San Luis Obispo County portion of the basin.

Water Quality. The general mineral character of groundwater in the Cuyama Basin is predominantly calcium-sulfate and magnesium-sulfate. Water quality generally deteriorates towards the west end of the basin, where the sediments thin. There is also poor quality water towards the northeast end of the basin at extreme depth, which may be connate from rocks of marine origin. Although groundwater in the Cuyama Valley is only of fair chemical quality, it has been used successfully to irrigate most crops. Presumably this has been possible because the sodium content of most of the water is relatively low and the soils are quite permeable (County of Santa Barbara 2005 Groundwater Report; Upson and Worts, 1951; Singer and Swarzenski, 1970).

Analyses of water from three public supply wells show an average TDS content of 858 mg/L and a range from 755 to 1,000 mg/L. USGS analyses show TDS content as high as 1,750 mg/L. Because of constant cycling and evaporation of irrigation water in the basin, water quality has been deteriorating (DWR 2003; SBCWA 1996; SBCWA 2001). Groundwater near the Caliente Range has high salinity, which has been attributed to seepage out of the basement marine

rocks. Nitrate content reached 400 mg/L in some shallow wells (DWR 2003; County of Santa Barbara Planning and Development Department, 1994).

Water Availability. Constraints on water availability in the Cuyama Valley basin are primarily physical limitations. The maximum potential yield that can be achieved through lowering water levels to increase natural stream flow seepage and reduce subsurface outflow have been reached (production has exceeded this value). The County of San Luis Obispo Planning Department has determined that the basin is currently at a Level III severity rating (resource capacity has been met or exceeded) due to historical groundwater level declines and resulting groundwater storage losses.

In 1980, the Cuyama groundwater basin was identified by the California Department of Water Resources as one of the eleven basins in "critical condition of overdraft. Although the groundwater basin is experiencing serious hydrologic impacts due to unsustainable groundwater pumping practices, a groundwater management plan for the basin does not exist. Since the Cuyama groundwater basin lies within four counties future efforts for a county groundwater management plan will likely be difficult (Andersen et al., 2009).

INLAND SUB-REGION

The Inland sub-region is comprised of seven Water Planning Areas (WPA's), including Carrizo Plain (WPA 10), Rafael/Big Spring (WPA 11), Santa Margarita (WPA 12), Atascadero/Templeton (WPA 13), Salinas/Estrella (WPA 14), Cholame (WPA 15) and Nacimiento (WPA 16). A brief description of the basins within each WPA is provided below, with details on groundwater supply aquifers, groundwater users, basin yield, water quality, and water availability.

Carrizo Plain WPA 10

Carrizo Plain is the only groundwater basin in WPA 10.

Carrizo Plain

The Carrizo Plain Groundwater Basin is located in the Inland sub-region (Figures 2.3 and 2.5) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-19 (DWR, 2003). The basin is 173,000 acres (270 square miles) in size and is situated between the Temblor Range to the east and the Caliente Range and San Juan Hills to the west. The basin has internal drainage to Soda Lake. The basin is also transected by the San Andreas fault. Annual precipitation in the basin ranges from 7 to 9 inches.

Published hydrogeologic information for this basin is compiled from older reports old and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. Groundwater in the basin is found in alluvium, the Paso Robles Formation, and the Morales Formation (DWR, 2003). The upper alluvium is of Pleistocene to Holocene age and consists of unconsolidated to loosely consolidated sands, gravels, and silts with a few beds of compacted clays. The Paso Robles Formation is of Pleistocene age and consists of poorly-sorted, mostly loosely consolidated gravels, sands, and silts. These deposits are more than 3,000 feet thick in the eastern portion of the basin along the San Andreas Fault Zone and decrease in thickness to the west. The Upper Pliocene Morales Formation consists of sands, gravels, and silts, which are generally more stratified and compacted than in the overlying Paso Robles Formation. Recharge to the basin is predominantly from percolation of stream flow and infiltration of precipitation. The groundwater storage capacity is estimated to be 400,000 AF, however the actual amount in groundwater storage is unknown.

Water Users. There is one small public water system serving the local school (part of the Atascadero Unified School District). All other pumping in the basin is for agricultural and residential purposes by overlying users. There are two proposed solar farms, as discussed in TM3 of this Master Water Plan (Topaz Solar Farm 550-MW; Sun Power-California Valley Solar Ranch 250-MW).

Basin Yield.

DWR Safe Yield: 600 AFY (based on demand in 1954)
Kemnitzer Safe Yield: 59,000 AFY (based on 1967 inflow/outflow analysis)

Taking into consideration the methodologies used in previous studies, historical groundwater levels, and water quality, the EIR estimates that a more reasonable safe yield to base planning decisions on is 8,000 – 11,000 AFY (SunPower - California Valley Solar Ranch Environmental Impact Report (EIR), Topaz Solar Farm (First Solar/Optisolar) Draft Environmental Impact Report, 2010).

Water Quality. Groundwater samples from 79 wells collected from 1957 to 1985 show total dissolved solids concentration ranging from 161 to 94,750 mg/l (DWR, 2003). Groundwater in the lower alluvium and upper Paso Robles Formation that both underlie Soda Lake are highly mineralized. Groundwater deeper in the confined Paso Robles Formation is of higher quality. Groundwater in the Morales Formation is likely to be brackish.

Water Availability. Constraints on water availability in the basin include physical limitations and water quality issues. The small basin yield of the Carrizo Plain Groundwater Basin relative to its large size and the naturally high levels of total dissolved solids in areas (e.g., Soda Lake) suggest that water availability in the region is limited. Other than water quality issues associated with the internal drainage structure of the basin, other constraints are not well defined.

Rafael Valley/Big Spring WPA 11

WPA 11 includes the Rafael Valley groundwater basin and the Big Spring Area groundwater basin.

Rafael Valley Basin

The Rafael Valley Groundwater Basin is located in the Inland sub-region of San Luis Obispo County (Figure 2.5) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-46 (DWR, 2003). The basin underlies the Rafael Valley and is 2,990 acres (4.7 square miles) in size. It is bounded by Cretaceous and Miocene age marine rocks and transected by the Chimeneas fault. The Rafael Valley is drained by the Rafael and San Juan creeks. Annual precipitation in the basin ranges from 8 to 10 inches per year.

Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. According to Bulletin 118, the main water-bearing unit in the basin is Quaternary age alluvium (DWR, 2003). Although the Chimeneas fault is noted to transect the basin, it is unknown whether it restricts or otherwise influences groundwater flow there.

Water Users. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users.

Basin Yield. No information is available describing basin yield.

Water Quality. No information is available describing water quality in the basin.

Water Availability. Constraints on water availability in the Rafael Valley basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rafael Valley, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Big Spring Area Basin

The Big Spring Area Groundwater Basin is located in the Inland sub-region of San Luis Obispo County (Figure 2.5) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-47 (DWR, 2003). The basin is 7,320 acres (11.4 square miles) in size and is bounded by Miocene age marine rocks. The basin underlies a valley that is drained by a tributary to San Juan Creek. Annual precipitation in the basin ranges from 8 to 10 inches.

Published hydrogeologic information for this basin is very limited. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. According to Bulletin 118, the main water-bearing unit in the basin is Quaternary age alluvium (DWR, 2003). No additional information is available describing the basin hydrogeology.

Water Users. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users.

Basin Yield. No information is available describing basin yield.

Water Quality. No information is available describing water quality in the basin.

Water Availability. Constraints on water availability in the Big Spring basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Big Spring area, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Santa Margarita WPA 12

WPA 12 includes the Santa Margarita Valley, Rinconada Valley, and Pozo Valley groundwater basins.

Santa Margarita Valley Basin

The Santa Margarita Valley Groundwater Basin is located in the Inland sub-region (Figure 2.2). The basin area includes the unincorporated town of Santa Margarita and surrounding rural residences and agricultural fields. The total drainage area associated with the basin consists of four watersheds that collectively drain in the northerly direction into the Salinas River. The major creeks associated with the four watersheds are the Santa Margarita Creek, the Yerba Buena Creek, Trout Creek, and Rinconada Creek.

The boundaries of the Santa Margarita Valley Groundwater Basin have never been fully investigated in a hydrogeologic study. However, based on studies by Hart (1976), Todd (2004), and Hopkins (2006), the basin is generally bounded to the north by the southern boundary of the Atascadero Groundwater Subbasin, to the west by the northwest trending Nacimiento Fault Zone, to the east by the northwest trending Rinconada Fault Zone, and to the south by the distal region of the Rinconada Creek Watershed.

The basin primarily contains four geologic units which, from youngest to oldest, are: 1) the Younger Alluvium, 2) Older Alluvium, 3) Paso Robles Formation, and 4) Santa Margarita Formation. Average annual rainfall in the area is between 25 to 30 inches (Todd, 2004).

Supply Aquifers. The basin is primarily defined by the shallow Younger Alluvium and Older Alluvium and the deeper Paso Robles and Santa Margarita formations. The Younger Alluvium and Older Alluvium deposits occur along the active stream channels and along the eastern basin boundary adjacent the Rinconada Fault Zone. In particular, alluvial deposits associated with the Santa Margarita Creek extend from the ground surface to a depth of about 50 feet. Relative to the deeper Paso Robles and Santa Margarita Formations, the younger and older alluvium have high hydraulic conductivities.

The Paso Robles Formation consists of unconsolidated to moderately well consolidated sand and gravel deposits that range in thickness up to 300 to 400 feet. The Paso Robles

Formation is found at depths in the range of 400 to 500 feet below ground surface and may consist of non-marine conglomerate. The Santa Margarita Formation is typically a poorly stratified sandy, marine sequence that conformably overlies the Monterey Formation which likely defines the effective base of fresh water in the basin area. The Santa Margarita Formation contains thick beds of fine- to coarse-grained arkosic sandstone that is locally calcareous. The thickness of the Santa Margarita Formation likely ranges up to 1,000 feet. In general, the Santa Margarita sandstone forms a poor to moderate aquifer for groundwater production. The Paso Robles and Santa Margarita formations tapped by wells for water supply purposes in the basin are typically located in the Yerba Buena Creek area.

Water Users. Water users in the Santa Margarita area include the unincorporated town of Santa Margarita and overlying users. Water service for the town of Santa Margarita is provided by County Service Area 23 (CSA 23). CSA 23 is governed by the County of San Luis Obispo and is operated/managed by the Department of Public Works. Overlying users include rural residences and agricultural users.

Basin Yield. Based on an evaluation of available data used for the Santa Margarita Ranch Environmental Impact Analysis study, Hopkins (2006) indicated that the average annual yield of the basin in the vicinity of the proposed Ranch development may be in the range of 400 to 600 AFY. Todd (2004) reported that earlier evaluations estimated groundwater storage for the Santa Margarita Creek alluvial aquifer between the Salinas River and the headwaters of the Santa Margarita and Yerba Buena creeks to be about 410 AF.

Water Quality. The total dissolved solids (TDS) concentration in wells constructed in the alluvial deposits and in the Santa Margarita Formation were reported to be 400 mg/l and 490 mg/l, respectively (Todd, 2004).

Based on a review of available water quality data by Todd (2004), all shallow and deep wells sampled for nitrate have measured concentrations below the maximum contaminant level (MCL) of 45 mg/l.

Total coliform, fecal coliform, and Escherichia coli data were reviewed by Todd (2004) and found to be suggestive, although not conclusive, of small impacts on both shallow and deep aquifer wells from local wastewater disposal systems.

Water Availability. The primary constraint on water availability in the basin concerns physical limitations. Although the alluvial aquifer is considered to be highly productive, it is shallow in vertical extent (i.e., 50 feet thick) and therefore highly susceptible to seasonal fluctuations in groundwater levels of about 15 to 20 feet. During dry water years or extended droughts, well yields may be significantly reduced due to low groundwater levels (Todd, 2004). Recharge in the shallow alluvial deposits for a particular year is dependent on the annual climate conditions and the associated creek streamflows and precipitation runoff generated in the four watersheds.

Wells developed in the Santa Margarita Formation generally do not have sufficient yields to reliably replace the wells in the alluvial aquifer which serve as the primary source of water for the town of Santa Margarita. Hydrographs of deep wells indicate that groundwater levels have been trending downward there at least over the last decade (Hopkins, 2006).

Rinconada Valley Basin

The Rinconada Valley Groundwater Basin is located in the Inland sub-region (Figure 2.4) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-43 (DWR, 2003). The basin underlies the Rinconada Valley and is 2,580 acres (4 square miles) in size. It is bounded by Miocene age marine rocks and Mesozoic Franciscan Group rocks, and lies along the Nacimiento and Rinconada fault zones. The valley is drained by Rinconada Creek, which is tributary to the Salinas River. Annual precipitation in the basin ranges from 20 to 24 inches.

There is very limited information available for this basin. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. According to Bulletin 118, the main water-bearing unit in the basin is Quaternary age alluvium (DWR, 2003). Although the Nacimiento and Rinconada faults are noted to transect the basin, it is unknown whether they restrict or otherwise influence groundwater flow there.

Water Users. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users.

Basin Yield. No information is available describing basin yield.

Water Quality. No information is available describing water quality in the basin.

Water Availability. Constraints on water availability in the Rinconada Valley basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Rinconada Valley, the alluvial aquifer also overlies and recharges the underlying marine consolidated rock formations and older Franciscan and granitic units. Water availability in the consolidated rock reservoirs is generally limited and highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Pozo Valley Basin

The Pozo Valley Groundwater Basin is located in the Inland sub-region (Figure 2.4) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-44 (DWR, 2003). The basin is 6,840 acres (10.7 square miles) in size and is bounded on all sides by low permeability rocks of Cretaceous and Miocene age. The basin is drained by Pozo Creek and the Salinas River, both of which flow into Santa Margarita Lake. Annual precipitation in the basin ranges from 19 to 23 inches.

Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. According to Bulletin 118, the main water-bearing unit in the basin is Holocene age alluvium (DWR, 2003). The alluvium is composed of sand, gravel, and clay and is up to 30 feet thick. The estimated specific yield of the alluvium is 15 percent. The groundwater storage capacity of the basin is estimated to be 2,000 AF, although the actual amount of groundwater in storage is unknown. Basin recharge occurs as percolation of stream flow, percolation of precipitation, and irrigation return flows.

Water Users. There are some small public water systems in the basin. All other pumping is for residential and agricultural purposes by overlying users.

Basin Yield. The safe available storage in the basin has been reported to be 1,000 AFY (DWR, 1958).

Water Quality. According to Bulletin 118, groundwater samples from 5 wells in the basin taken from 1951 to 1988 indicate TDS concentrations ranging from 287 to 676 mg/l (DWR, 2003).

Water Availability. Constraints on water availability in the Pozo Valley basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Pozo Valley, the alluvial aquifer also overlies and recharges the underlying consolidated marine rock formations and granitic rock units. Water availability in the consolidated rock reservoirs is generally limited and highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Atascadero/Templeton WPA 13

WPA 13 includes the Atascadero subbasin of the Paso Robles groundwater basin (see WPA 14 for Paso Robles groundwater basin description). WPA 13 also includes consolidated rock aquifers that are not a part of, or described by, the Paso Robles groundwater basin. No information on the yield and water quality of these formations is available.

Atascadero Groundwater Subbasin

The Atascadero Groundwater Subbasin is located in the Inland sub-region (Figure 2.2) and is a subbasin within the Paso Robles Groundwater Basin. The northern boundary of the subbasin is approximately the southern end of the City of Paso Robles and the southern subbasin boundary is located just south of the community of Garden Farms. The western boundary of the subbasin is the western boundary of the Paso Robles Groundwater Basin and the eastern boundary of the subbasin is the Rinconada fault. Because the fault displaces the Paso Robles Formation, the hydraulic connection between the aquifer across the Rinconada fault is sufficiently restricted to warrant the classification of this area as a distinct subbasin (i.e., the Atascadero Groundwater Subbasin). Therefore, the Atascadero subbasin of the Paso Robles Groundwater Basin is defined as that portion of the basin west of the Rinconada fault.

The Atascadero subbasin includes the City of Atascadero and the communities of Templeton and Garden Farms. The Salinas River is the major hydrologic feature in the subbasin. Outflow (primarily surface flow and Salinas River underflow) occurs in the northern direction from the subbasin into the Estrella subarea of the Paso Robles Groundwater Basin.

Supply Aquifers. Pumping test data from wells in the subbasin suggest the presence of three aquifer groups with distinctly different hydraulic characteristics: 1) Holocene age alluvium along the floodplain of the Salinas River, 2) Paso Robles Formation deposits directly underlying the Salinas River alluvium, and 3) Paso Robles Formation deposits along the east side of the subbasin that are not directly connected to the younger alluvium.

The Salinas River alluvium is an unconfined aquifer that consists almost entirely of sand and gravel, with a high hydraulic conductivity. The thickness of the alluvium ranges widely, with an estimated maximum thickness of 100 feet. Shallow wells up to 100 feet deep are located in the immediate vicinity of the Salinas River along its entire reach, typically tapping the younger alluvium and/or shallow Paso Robles Formation aquifer zones.

In the City of Atascadero area, the Paso Robles Formation underlies the younger alluvium along the Salinas River floodplain. Wells in the Paso Robles Formation in hydraulic communication with the overlying younger alluvium tend to have higher hydraulic conductivity values than wells that penetrate the portions of the Paso Robles Formation not in contact with the alluvium.

Paso Robles Formation deposits east of the Salinas River comprise the largest portion of the subbasin. Lithology descriptions from driller's logs include sand and gravel with interbedded clays. The upper 300 feet of sediments in this area is characterized by thin (5 feet to 15 feet thick) interbedded brown or yellow clays with sand and "shale gravel." The beds tend to be thicker below 300 feet, with an increasing proportion of sand and gravel. The deepest part of the formation is the area between Templeton and the Rinconada fault. In general, deep wells reach several hundred feet deep and tap the Paso Robles Formation, although a few of the deeper wells also tap the upper portion of the upper Miocene-age Santa Margarita Formation.

The main source of recharge in the alluvium is the Salinas River. Recharge to the Paso Robles Formation occurs from the overlying Salinas River alluvium as well as from overlying channel deposits of the Santa Margarita, Atascadero, Graves, and Paso Robles creeks.

Water Users. Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major water purveyors are the Atascadero Mutual Water Company (Atascadero MWC), Templeton Community Services District (Templeton CSD), and Garden Farms Mutual Water Company (Garden Farms MWC).

Basin Yield. The perennial yield of the subbasin was estimated to be 16,400 AFY (Fugro, 2002).

Water Quality. Evaluation of water quality in the subbasin is based on historical data from 1970 to 1997 collected and reviewed by Fugro (2002). The general mineral character of recharge from Salinas River water is typically calcium and magnesium bicarbonate. Santa Margarita Creek water is magnesium-calcium-bicarbonate and Atascadero and Paso Robles creek water is calcium-bicarbonate. Total dissolved solids concentrations measured in wells along the Salinas River alluvium range from 317 to 857 mg/l. Total dissolved solids concentrations measured in wells in the Paso Robles Formation range from 389 to 975 mg/l (Fugro, 2002). Water quality data from 11 wells and one spring in the subbasin showed that no concentrations of contaminants exceed their respective MCL values (Fugro, 2002). The 2008 Water Quality Report for both Templeton CSD and Atascadero MWC found that none of the

regulated and secondary substances that were tested for in water samples exceeded their MCL values.

Water Availability. Primary constraints on water availability in the subbasin include water rights and physical limitations. The rights to surface water flows in the Salinas River and associated pumping from the alluvium have been fully appropriated by the State Water Resources Control Board (State Board) and no future plans exist to increase these demands beyond the current allocations. Full appropriation implies that no additional rights to the Salinas River flows are being issued by the State Board at this time nor is any additional pumping for existing rights being granted. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation.

In terms of physical limitations, Todd (2009) estimated the gross groundwater pumping in the subbasin during 2006 to be 15,545 AF which is 95 percent of the subbasin perennial yield of 16,400 AFY. Ongoing studies that are expected to be completed in early 2010 may revise the estimated outflow from the subbasin, based on a recalculation of the subbasin water balance including return flows as well as new assumptions related to rural domestic water demands.

Salinas/Estrella WPA 14

WPA 14 includes the Paso Robles groundwater basin (except for the Atascadero subbasin portion, which is in WPA 13).

Paso Robles Basin

The Paso Robles Groundwater Basin is part of the Inland sub-region (Figures 2.2 and 2.3). According to California's Groundwater Bulletin 118, the entire Paso Robles Groundwater Basin is located within the greater Salinas Valley Groundwater Basin and is identified as Groundwater Basin Number 3-4.06. The entire Paso Robles Groundwater Basin is located in both Monterey and San Luis Obispo counties and is 505,000 acres (790 square miles) in size. The basin ranges from the Garden Farms area south of Atascadero to San Ardo in Monterey County, and from the Highway 101 corridor east to Shandon. In Monterey County, the basin is bounded to the north by the Upper Valley Aquifer Subbasin. In San Luis Obispo County, the basin is bordered on the east by the Temblor Range, on the south by the La Panza Range, and on the west by the Santa Lucia Range.

In general, the basin is drained by the Salinas River, Estrella Creek, San Juan Creek, Huer Huero Creek, and numerous other smaller channels that are tributary to these major rivers and creeks.

Supply aquifers. Groundwater in the basin is found in Holocene age alluvium and in the Pleistocene age Paso Robles Formation. Holocene age alluvium is formed by alluvial deposition. These alluvial deposits consist of unconsolidated, fine- to coarse-grained sand with pebbles and boulders. In general, these deposits are mostly unconfined, range in depth from 30 to 130 feet below ground surface, and are characterized by relatively high permeability. Most of the alluvium associated with the various rivers and creeks in the basin provide limited supplies of extractable groundwater. The Salinas River, however, is a significant source of groundwater to several municipalities located adjacent to and along its reach as well as a number of

overlying users with appropriative or riparian rights. Groundwater in the alluvium is a principal source of recharge to the underlying Paso Robles Formation.

The Paso Robles Formation is the most significant source of groundwater in the basin. It consists of unconsolidated, poorly-sorted sand, silt, gravel, and clay. Recharge to the basin derives from stream percolation of the alluvium underflow, infiltration of precipitation, and deep percolation of applied irrigation and wastewater discharge. Groundwater in the basin generally flows in the northwest direction. The groundwater storage capacity of the basin was estimated at 30,400,000 AF (Fugro West, 2002), although a portion of the storage capacity of the basin is not available to San Luis Obispo County users. Roughly one-third of the areal extent of the Paso Robles groundwater basin extend into Monterey County.

Water Users. Water users in the basin include municipalities, communities, rural domestic residences, and agricultural users. The major municipal water purveyors include the Atascadero Mutual Water Company, City of Paso Robles, Templeton Community Services District, CSA 16-1 (Shandon), and San Miguel Community Services District.

The San Luis Obispo County Environmental Health Department also identified 36 small commercial and community water systems that extract groundwater from the basin, including Garden Farms Mutual Water Company and Green River Mutual Water Company. Overlying users include rural domestic residences and agricultural farms.

Basin Yield. The perennial yield of the Paso Robles Groundwater Basin (including the Atascadero Groundwater Subbasin) is estimated to be 97,700 AFY (Fugro, 2002).

Water Quality. Overall, a review of available data by Fugro (2002) found that the quality of groundwater in the basin is generally good. Five potential water quality issues, however, were identified in the basin (excluding the Atascadero Groundwater Subbasin):

1. Increasing chlorides in the deep, historically artesian aquifer northeast of Creston;
2. Increasing total dissolved solids (TDS) and chlorides near San Miguel;
3. Increasing nitrates in the Paso Robles Formation in the area north of Highway 46, between the Salinas River and the Huer Huero Creek;
4. Increasing nitrates in the Paso Robles Formation in the area south of San Miguel; and
5. Increasing TDS and chlorides in deeper aquifers near the confluence of the Salinas and Nacimiento rivers

The 2009 Consumer Confidence Report for the City of Paso Robles reported no violations of MCL values for regulated substances and secondary substances in groundwater pumped by its distribution system. The 2007 Consumer Confidence Report for the San Miguel CSD reported a measured arsenic concentration of 11 ug/l (MCL for arsenic is 10 ug/l) and a measured barium concentration of 71.5 ug/l (MCL for barium is 2 ug/l). The 2008 Water Quality Report for CSA 16-1 found that none of the regulated and secondary substances that were tested for in water samples exceeded their MCL values.

Water Availability. Primary constraints on water availability in the basin include water rights, water quality, and physical limitations. The rights to surface water flows in the Salinas

River and associated pumping from the alluvium have been fully appropriated by the State Water Resources Control Board (State Board) and no future plans exist to increase these demands beyond the current allocations. Full appropriation implies that no additional rights to the Salinas River flows are being issued by the State Board at this time nor is any additional pumping for existing rights being granted. Therefore, the Salinas River does not represent a future source of water supply that can be developed beyond its present appropriation. In terms of physical limitations, Todd (2009) estimated the total groundwater pumping in the basin during 2006 to be 88,154 AF which is 90 percent of the basin perennial yield of 97,700 AFY.

Portions of the Paso Robles Groundwater Basin have experienced significant water level declines over the past 15 to 20 years (Fugro 2002, Fugro 2005, Todd 2007, Todd 2009). The causes of the water level declines include a range of groundwater uses in close proximity, including agricultural irrigation, municipal supply wells, golf course irrigation, and a relatively dense aggregation of rural ("ranchette") users. The County Board of Supervisors has certified a Level of Severity III for the main Basin and a Level of Severity I for the Atascadero Subbasin based on findings in the Resource Capacity Study and an updated pumping analysis for the basin. As a result of the certification, certain land use and monitoring actions will be implemented by the County.

Cholame Valley WPA 15

Cholame Valley is the only groundwater basin in WPA 15.

Cholame Valley Basin

The Cholame Valley Groundwater Basin is located in the Inland sub-region (Figure 2.3) and is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-5 (DWR, 2003). The basin is located in both Monterey and San Luis Obispo counties and is 39,800 acres (62 square miles) in size. The basin is comprised of Quaternary alluvium and is bounded to the southwest by the Plio-Pleistocene nonmarine Paso Robles formation and by Quaternary nonmarine terrace deposits to the northeast. The valley is drained by Cholame Creek and its tributary southeastward and westward into the Salinas River. Annual precipitation in the basin ranges from 11 to 17 inches.

Published hydrogeologic information for this basin is limited. If the District requires more current or detailed information for this basin, new studies would be necessary. Information currently compiled by County departments (such as well logs for private wells or water quality for shared well systems) would be useful to these studies. Additional information may be available from the DWR and private sources.

Supply Aquifers. According to Bulletin 118, available well completion reports indicate that the basin consists of both alluvial deposits and consolidated rock (DWR, 2003). Depths of the wells ranged from 100 to 665 feet. Most wells were located on the fringe of the basin in the upper canyon areas and are used primarily for domestic water supply. Groundwater flow direction is down valley to the southeast.

Water Users. There are some small public water systems in the San Luis Obispo County portion of the basin. All other pumping is for residential and agricultural purposes by overlying users.

Basin Yield. No information is available describing basin yield.

Water Quality. Very limited groundwater quality information has been published or described. Water quality data from non-specific sites indicate generally high concentrations of total dissolved solids, chlorides, sulfates, and boron (Chipping, et al, 1993).

Water Availability. Constraints on water availability in the Cholame Valley basin include physical limitations and water quality.

Nacimiento WPA 16

There are no significant groundwater basins in WPA 16. Public water systems such as Heritage Ranch, Water World Resorts, and the Nacimiento Water Company draw water from wells that rely on Nacimiento reservoir surface water or surface water releases. These water systems are discussed in Technical Memorandum 3.

OTHER GROUNDWATER SUPPLY SOURCES

The groundwater basins described above comprise most of the groundwater supply sources in San Luis Obispo County. There are other areas, however, where groundwater wells tap fractured rock aquifers or other non-basin sources. Water resources in some of these areas have been studied on a multiple-parcel basis for specific planning issues or for small public water systems, but in most cases hydrogeologic data is only generated when a new well is drilled or a property is sold. Generally, available information is limited to specific wells; formation-wide data related to aquifer yield, water quality, or water availability is not available.

A general classification of groundwater sources could begin with the age of geologic materials. All the groundwater basins in the county contain unconsolidated Quaternary-age deposits, and some include late Tertiary (Pliocene) deposits. Outside of the basins, the most productive local groundwater supply sources are from Tertiary-age deposits, such as the Santa Margarita Formation, Pismo Formation, Monterey Formation, and Obispo Formation. Older rocks, such as the Cretaceous sedimentary beds, Franciscan Formation, and La Panza granitics have very limited potential for water.

Within each formation there may be productive rock units. For example, in the Franciscan Formation, wells tapping fractured metavolcanics near active faults can supply over 100 gallons per minute to wells, even though most of the formation is relatively dry.

The following table lists some of the more developed areas of the county that are outside of groundwater basins, and the typical groundwater source to wells. If the District requires more detailed information, focused studies would be necessary. Information currently compiled by County departments (such as well logs, pump tests, or water quality for small public water systems in rural areas) would be useful to these studies. Additional information may be available from the DWR and private sources.

Table 2.2 – Other Groundwater Supply Sources

Sub-Region	Area	Common Geologic Formation	Production Zone
North Coast	Santa Rosa Creek Road	Monterey Fm. / Obispo Fm.	Siliceous shale/vitrified tuff
North Coast	Villa/Cayucos/Old/Willow/ Toro Creek Roads	Franciscan Fm. / Vaqueros Fm.	Metavocanics/ fractured sandstone
Inland	Nacimiento / San Antonio Lakes	Cretaceous sedimentary beds	Fractured sandstone
Inland	Adelaide	Monterey Formation	Calcareous siltstone, siliceous shale
Inland	Park Hill	La Panza Granitics	Quartz dikes
Inland	Templeton Hills	Monterey Formation	Fractured shale
South Coast	San Luis Hills/Oak Park	Pismo Formation	Sandstones
South Coast	Nipomo Valley/Los Berros/Tematte Ridge	Obispo Formation/ Monterey Fm.	Vitrified tuff/siliceous shale

San Luis Obispo County Flood Control and Water Conservation District

APPENDIX C – TM NO. 3, WATER SUPPLY INVENTORY AND ASSESSMENT – WATER SUPPLY, DEMAND, AND WATER QUALITY

TECHNICAL MEMORANDUM NO. 3

Date: March 29, 2010 (Updated 1/21/11)

To: JOSE GUTIERREZ, CAROLLO ENGINEERS

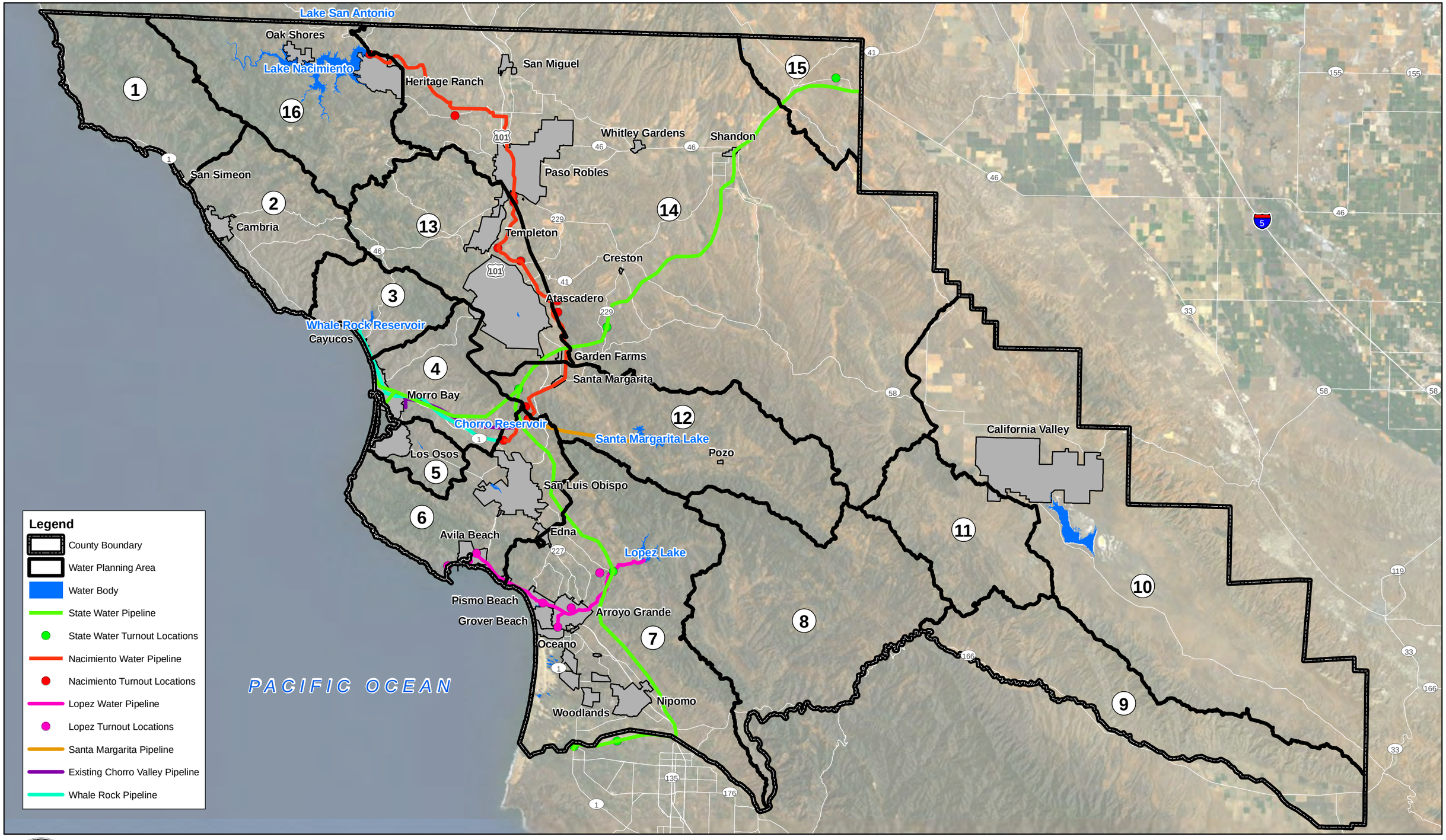
From: STEVE TANAKA, WALLACE GROUP

Subject: TASK C.3 WATER SUPPLY INVENTORY AND ASSESSMENT – WATER SUPPLY, DEMAND AND WATER QUALITY

In conjunction with Fugro West, Inc. and Cleath-Harris Geologists, we are submitting this technical memorandum No. 3 (TM) for Task C.3, Water Supply Inventory and Assessment. This TM focuses on water purveyor water supply, demand and water quality throughout the County. This TM includes a general overview of water supply resources, and more detailed descriptions of water supply for each purveyor (in each corresponding section). This TM also describes the various agreements/contracts of each purveyor with respect to water allocations, and cooperative agreements between multiple parties for overall management of shared water resources. Finally, this TM No. 3 includes an overview of water qualities of the various purveyors throughout the County.

SURFACE WATER RESOURCES

Water is drawn from a number of surface sources, both inside and outside of the County. This section describes the reservoirs in and out of the County that are used as water supply sources within the County. It also includes a brief description of the State Water Project. Allocations and key user agreements are described for each water source. Figure 3.1 shows the location of the conveyance systems for these sources.



San Luis Obispo County Flood Control and Water Conservation District

MASTER WATER PLAN

WATER CONVEYANCE MAP

FIGURE 3.1

STATE WATER PROJECT

The California Department of Water Resources (DWR) owns and operates the State Water Project (SWP). It is the largest state-built water and power project in the United States. The SWP first started delivering water to Californians in the 1960s and in 1963 the San Luis Obispo County Flood Control and Water Conservation District (District) contracted with DWR for 25,000 acre feet per year (AFY) of State Water. The SWP began delivering water to the Central Coast in 1997 upon completion of the Coastal Branch conveyance and treatment facilities, serving Santa Barbara and San Luis Obispo counties.

The treatment facility for State Water delivered through the Coastal Branch, known as the Polonio Pass Water Treatment Plant (PPWTP), is owned, operated and maintained by the Central Coast Water Authority (CCWA) for users in San Luis Obispo and Santa Barbara Counties. The Coastal Branch conveyance system is owned by DWR, which also operates and maintains the raw water portion of the system. The portion of the aqueduct that conveys treated water is operated and maintained by CCWA. Agreements between CCWA, Santa Barbara County Flood Control and Water Conservation District, District and DWR are in place to establish these roles and relationships.

In San Luis Obispo County, decisions were made in the early 1990's by local municipalities and water purveyors that led to Water Service Amount (WSA) requests for portions of the District's allocation of State Water. After extensive policy discussions regarding the use of State Water, the District entered into Water Supply Agreements with the agencies identified in Table 3.1. Master Water Treatment and Coastal Branch construction agreements with CCWA were also approved for treatment of 4,830 AFY of State Water, the cumulative total of WSA requests.

The SWP is considered a supplementary source of water supply as hydrologic variability, maintenance schedules, and repair requirements can cause reduced deliveries or complete shut down of the delivery system. Since delivery to the Central Coast began, the SWP has provided between 50 and 100 percent of the contracted allocations, but drought coupled with pumping restrictions in consideration of endangered species habitat lowered that amount to 35 percent in 2008 and 40 percent in 2009. To receive a greater portion of State Water, up to their full WSAs, during these shortages, most agencies have entered into "Drought Buffer Water Agreements" with the District for use of an additional portion of the District's SWP allocation, as shown in Table 3.1. For example, when the SWP can only deliver 50% of contracted allocations, an agency with a 100 AFY WSA and a 100 AFY drought buffer allocation can still receive its 100 AFY WSA – 50% of their 100 AFY WSA plus 50% of their 100 AFY drought buffer allocation equals 100 AFY.

Table 3.1 also illustrates that the District has 15,273 AFY of unsubscribed SWP allocation (District allocation (25,000 AFY) minus Total Reserved (9,727 AFY) equals 15,273 AFY), commonly referred to as the "excess allocation." Hydraulics, treatment plant capacity, and contractual terms and conditions limit how the excess allocation can be used. The following is a list of options for use of this excess allocation that will be evaluated in the MWP:

- Direct delivery after contract-revision negotiation for use of any additional capacity available in the Coastal Branch treatment and conveyance facilities;
- As additional drought buffer water;
- Via permanent, multi-year or single year transfer or exchange; and/or
- After groundwater or surface storage.

Table 3.1: District State Water Project Contractors

Contractor	WSA	Buffer	Total Reserved	6% Allocation Year (1977) (1)	66-69% Allocation Year (1)	100% Allocation Year (1)	WPA
Chorro Valley Turnout							
Morro Bay, City of	1,313	2,290	3,603	216	1,313	1,313	4
California Mens Colony	400	400	800	48	400	400	4
County Operations Center	425	425	850	51	425	425	4
Cuesta College	200	200	400	24	200	200	4
Subtotal	**2,338**	**3,315**	**5,653**	**339**	**2,338**	**2,338**	
Lopez Turnout							
Pismo Beach, City of	1,240	1,240	2,480	149	1,240	1,240	7
Oceano CSD	750	0	750	45	495	750	7
San Miguelito MWC	275	275	550	33	275	275	6
Avila Beach CSD	100	0	100	6	66	100	6
Avila Valley MWC	20	60	80	5	20	20	6
San Luis Coastal USD	7	7	14	1	7	7	6
Subtotal	**2,392**	**1,582**	**3,974**	**238**	**2,103**	**2,392**	
Shandon	100	0	100	6	66	100	14
Subtotal	**100**	**0**	**100**	**6**	**66**	**100**	
Total	**4,830**	**4,897**	**9,727**	**584**	**4,507**	**4,830**	

Notes:
1. Minimum, average, and maximum allocations established in the State Water Project Delivery Reliability Report 2007 (August 2008), page 51, Table 6.13.
This study used 66% for the average allocation year.

SWP Reliability

Future SWP deliveries to the District and SWP subcontractors within the County will be affected by many factors, including Delta pumping restrictions and climate change. Estimating the delivery reliability of the SWP depends on many issues, including possible future regulatory standards in the Delta, population growth, water conservation and recycled efforts, and water transfers. The California Department of Water Resources (DWR) published the State Water Project Delivery Reliability Report 2007 (August 2008). The report estimates future (2027) SWP delivery reliability and incorporates the 2007 federal court ruling for Delta pumping and potential impacts of future climate change. When compared to previous reliability reports, total annual deliveries for 2027 show decreases in deliveries in most years if no actions are taken to address the factors causing the decrease in availability. It is important to recognize that actions to re-establish reliability are being evaluated by DWR, State Water Contractors, and other State and Federal agencies. Future actions may include new environmental efforts as well as infrastructure improvements envisioned when the SWP was originally scoped in the 1960s.

Table 6.13 from the 2007 DWR reliability report contains the average, maximum, and minimum estimates of SWP Table A deliveries from the Delta under future conditions. Table 6.13 shows that average SWP delivery amounts may decrease from 8 to 11 percent of maximum SWP Table A amounts as compared to average SWP delivery amount estimates from previous reliability studies. In the 2005 DWR reliability report, delivery amounts were projected to be

77% of maximum SWP Table A amounts on average. The 2007 DWR reliability report projects delivery amounts to be 66 – 69% of maximum SWP Table A amounts on average. The decrease in deliveries is primarily due to flow targets related to Delta smelt, which reduces the amount of Delta water available for export by the SWP and the assumed hydrologic changes associated with climate change.

Table 3.1 not only lists the WSA, drought buffer, and total reserve allocations for the District, but it also provides the average, maximum single year and minimum single year allocations based on the range of deliveries presented in Table 6.13 from the 2007 reliability report. The minimum, average, and maximum deliveries were 6, 66, and 100 percent of the maximum SWP Table A allocations, respectively. For long term planning, it is assumed that SWP contractors will receive 66 percent of the maximum allocation in a given year. The allocations presented in Table 3.1 include the drought buffer (if applicable).

NACIMIENTO WATER PROJECT

The Nacimiento Dam was constructed in 1957 by Monterey County Flood Control and Water Conservation District (now known as the Monterey County Water Resources Agency (MCWRA)). The dam and reservoir continue to be operated by MCWRA. The lake has a capacity of 377,900 acre feet and a surface area of 5,727 acres. Water is collected from a 365.1 square mile watershed that is comprised of grazing lands and rugged wilderness.

In 1959, the District secured the rights to 17,500 AFY from Lake Nacimiento, with 1,750 AFY reserved for lakeside users and the Heritage Ranch Community Services District (CSD). After a long series of studies and negotiations, the Nacimiento Water Project (NWP) was initiated. The NWP is the single largest project that the District has ever undertaken. The total project cost, including design, construction, construction management, environmental permitting, and right-of-way, is approximately $176 million. Water deliveries are slated to begin in 2010. The project will deliver raw lake water from Lake Nacimiento to communities within San Luis Obispo County. Participating entities and their contracted water amounts are listed in Table 3.2.

Table 3.2: NWP Participants

Participants	Allocation (AFY)
City of Paso Robles	4000
Templeton CSD	250
City of San Luis Obispo	3380
Atascadero MWC	2000
CSA 10 A (via exchange)*	25
TOTAL	9655

*See Whale Rock Reservoir Operating Agreements

Though the participants have contracted for 9,655 AFY, the northern portions of the pipeline and appurtenances have been designed for the maximum allowable withdrawal amount of 15,750 AFY. Decreasing percentages of excess capacity are also designed into the southern reaches of the project. It is expected that additional allocations will be purchased in the future by existing participants or other entities. The mechanism by which the participation requests of other entities are considered varies depending on whether or not the entity was a part of the Environmental Impact Report (EIR). If the entity was a part of the EIR, it can proceed directly to the District Board of Supervisors for consideration. If it was not a part of the original EIR, it must consult with the Nacimiento Project Commission and obtain written support from existing

participants that represent at least 55% of existing subscription amounts before proceeding to the District Board of Supervisors for consideration.

WHALE ROCK RESERVOIR

Whale Rock Reservoir is located on Old Creek Road approximately one half mile east of the community of Cayucos. The project was planned, designed, and constructed under the supervision of the State Department of Water Resources. Construction took place between October 1958 and April 1961. The reservoir is jointly owned by the City of San Luis Obispo, the California Men's Colony, and Cal Poly. These three agencies, with the addition of a representative from the Department of Water Resources, form the Whale Rock Commission which is responsible for operational policy and administration of the reservoir and related facilities. Day-to-day operation is provided by the City of San Luis Obispo.

Whale Rock reservoir is formed by an earthen dam and was able to store an estimated 40,662 acre-feet of water at the time of construction. The calculation of the yield available is coordinated with Salinas Reservoir using a safe annual yield computer model. The model also evaluates the effect of siltation. The Whale Rock Commission has budgeted for a siltation study to be undertaken in the near future.

Operating Agreements

Several agreements establish policy for the operation of the Whale Rock system and actions of the member agencies. A brief description of the existing agreements follows:

A) Agreement for the construction and operation of the Whale Rock Project, 1957, set forth the project's capital cost distribution to the member agencies.

B) A supplemental operating agreement, 1960, established the Whale Rock Commission and apportioned the operating costs.

C) Downstream water rights agreement (the original 1958 agreement was amended in April 1996) defining water entitlements for adjacent and downstream water users. The Cayucos Area Water Organization (CAWO) affected by this agreement consists of three public water purveyors and the cemetery, all in the Cayucos area. In addition to the agencies, water entitlements were identified for two separate downstream land owners. Entitlements are as follows (units of AFY):

Cayucos Area Water Organization (CAWO)[1]	
Paso Robles Beach Water Association	222
Morro Rock Mutual Water Company	170
County Service Area 10A	190
Cayucos-Morro Bay Cemetery District	18
Mainini Ranch	50
Ogle	14
Total Downstream Entitlement	664

The agencies generally receive their entitlements via pipeline from the reservoir, while the land owners' entitlement is released from the reservoir.

D) A decision and order by the Fish and Game Commission of the State of California, October 24, 1964, required the Whale Rock Commission to stock the reservoir with

[1] The referenced agreement establishes the amount of 600 AFY to CAWO. The allocations to the CAWO members are part of an internal agreement amongst the members.

17,500 rainbow trout (between six and eight inches long) each year. Subsequent DFG decisions have prohibited restocking with rainbow trout.

E) Superior Court decision #36101, 1977, required the Whale Rock Commission to allow public entry to the reservoir for fishing. In 1981, construction was completed on access trails and sanitary facilities at the reservoir, and public fishing began at the lake.

F) An agreement for water allocation and operational policy between the agencies forming the Whale Rock Commission. The agreement established the accounting procedures to allow each agency to carry over excess or deficit water each year.

G) An agreement between the Whale Rock Commission and the California Men's Colony, 1990, to establish maintenance and operation criteria for the Chorro Booster pumps. The Chorro Booster pumps were installed by the Commission on the California Men's Colony turnout from the Whale Rock line to reduce system pressures required to provide full flow to the California Men's Colony water treatment plant. Pump and pump station maintenance, per the agreement, are the responsibility of the California Men's Colony.

H) An agreement between the Whale Rock Commission and the County of San Luis Obispo for connection to the Whale Rock pipeline, 1995, allowed a pipeline connection to deliver water to the Dairy Creek Golf Course. Typically, the golf course uses recycled water from the California Men's Colony. Water from Whale Rock Reservoir can be delivered when recycled water is not available under the terms of the agreement.

I) A consent to common use agreement, 1996, between the Whale Rock Commission and the County of San Luis Obispo. The agreement allowed the installation of the State Water pipeline at seven locations within the existing Whale Rock pipeline easement.

J) A mutual aid agreement between the Whale Rock Commission and the City of Morro Bay, 2000, relative to water resources in the event of an emergency.

K) An exchange agreement, 2005, between CSA 10A and the City of San Luis Obispo allowing the delivery of up to 90 AFY of the City's Whale Rock water allocation to CSA 10A in exchange for CSA 10A's purchase of an equivalent amount of Nacimiento Water for delivery to the City. The anticipated need for CSA 10A is 25 AFY at build-out.

The following table below summarizes the current capacity rights for the joint right-holders (downstream water rights are accounted for separately).

Table 3.3: Whale Rock Reservoir Allocations

Water Users	%	AF
City of San Luis Obispo:	55.05	22,383
Cal Poly	33.71	13,707
CMC	11.24	4,570
TOTAL	100	40,660

Each rights-holder manages reservoir withdrawals individually from their available water storage allocation. The Whale Rock Commission tracks withdrawals and reports available volume on a monthly basis.

LOPEZ LAKE/RESERVOIR

The San Luis Obispo County Flood Control and Water Conservation District completed the Lopez Dam in 1968 to provide a reliable water supply for agricultural and municipal needs as well as flood protection for coastal communities. Lopez reservoir has a capacity of 49,388 AF.

The lake covers 950 acres and has 22 miles of oak covered shoreline. Allocations for Lopez water are based on a percentage of the safe yield of the reservoir, 8,730 AFY. Of that amount, 4,530 AFY are for pipeline deliveries and 4,200 AFY are reserved for downstream releases. The dam, terminal reservoir, treatment and conveyance facilities are a part of Flood Control Zone 3.

The agencies that contract for Lopez water in Zone 3 include the communities of Oceano, Grover Beach, Pismo Beach, Arroyo Grande, and County Service Area (CSA) 12 (including the Avila Beach area). Their allocations are shown in the table below.

Table 3.4: Lopez Lake Allocations

Water Users	AFY
City of Pismo Beach	896
Oceano CSD	303
City of Grover Beach	800
City of Arroyo Grande	2290
CSA 12	241
TOTAL	4530

There are two developments that could change both the amount of water available to contractors and the safe yield. The Arroyo Grande Habitat Conservation Plan, which is currently being developed, will likely require additional downstream releases. An interim downstream release schedule has reduced the amount of water available to municipalities. Changes in operation of the dam are being considered for reducing spills and optimizing future deliveries. Additionally, the City of Pismo Beach, on behalf of the Zone 3 agencies, has taken the lead on conducting a study to consider the feasibility of modifying the dam to augment capacity of the reservoir.

SANTA MARGARITA LAKE/SALINAS RESERVOIR

The Salinas Dam was built in 1941 by the War Department to supply water to Camp San Luis Obispo and, secondarily, to meet the water needs of the City of San Luis Obispo. The Salinas Reservoir (Santa Margarita Lake) captures water from a 112 square mile watershed and can currently store up to 23,843 acre-feet. In 1947, the Salinas Dam and delivery system was transferred from the regular Army to the U.S. Army Corps of Engineers. Shortly thereafter, the San Luis Obispo County Flood Control and Water Conservation District began operating this water supply for the City under a lease from the U.S. Army Corps of Engineers. Water from the reservoir is pumped through the Cuesta Tunnel (a one mile long tunnel through the mountains of the Cuesta Ridge) and then flows by gravity to the City's Water Treatment Plant on Stenner Creek Road. Transfer of dam ownership to the District from the U.S Army Corps of Engineers is under consideration.

The original design of the dam included spillway gates that would have increased capacity to an estimated 45,000 AF, and an increase in safe annual yield of 1,650 AFY. Though these gates were not installed due to safety concerns, more recent studies have shown that gates could be installed in conjunction with structural improvements to the dam. With its participation in the Nacimiento Water Project, the City has concluded that plans for expansion of the Salinas Reservoir should be put on hold. There is a possibility that this expansion right might be eliminated from the City's Water Rights Permit when it is renewed or licensed after December 2010.

The City withdrawals are coordinated with Whale Rock Reservoir using a safe annual yield computer model. The City's combined safe yield of the two reservoirs was 6950 AFY in 2009. The model also evaluates the effect of siltation.

CHORRO RESERVOIR

(Information for this section was taken from an interview with John Kellerman, the Plant Manager at the California Men's Colony and from the 2003 Chorro Valley Study).

The Chorro Reservoir is located approximately ¾ of a mile northeast of the California Men's Colony (CMC) in the upper Chorro watershed. The Chorro Reservoir is part of the Chorro Valley Water System operated by CMC. The system provides storage, treatment and distribution to four major users:

- The California Men's Colony (CMC)
- Camp San Luis Obispo/California National Guard (CSLO)
- San Luis Obispo County Operational/Education Centers (SLOCo)
- Cuesta Community College (Cuesta)

The reservoir and treatment plant were constructed by the US Army Corps of Engineers to provide water to Camp San Luis Obispo at the beginning of World War II. The net storage capacity of the Chorro Reservoir has decreased since it was constructed due to sedimentation, and was estimated to be 105 acre-feet, based on a study prepared by DWR in 1989. More recent studies indicate that the capacity is currently closer to 90 acre-feet. Safe annual yield is considered to be 140 AFY, as the watershed provides much more than what can be stored in the reservoir, even in drought years. It is worth noting that water demand at the Camp, both during the war and subsequently, has been met almost exclusively through surface flows to the reservoir from the Chorro watershed and from groundwater wells on the Camp property. Although the Salinas Reservoir waterline was extended from the Cuesta Water Tunnel to the Chorro Reservoir as part of the original improvements in World War II, the pipeline has only been used to convey water from the Salinas Reservoir to the Camp twice since construction.

CSLO has priority rights to water from Chorro Reservoir, with entitlement to 140 AFY. CMC has right to any excess. The Mainini Ranch has an agreement with CSLO for a delivery of up to 25 AFY, but has only used an average of 5 to 7 AFY over the past decade. For further discussion on agreements related to the Chorro Reservoir, see the description of the Chorro Valley Water System.

TWITCHELL RESERVOIR

Twitchell Dam is on the Cuyama River about 6 miles upstream from its junction with the Sisquoc River. Though the dam is located in Santa Barbara County and operated by the Santa Maria Valley Water Conservation District (SMVWCD), the reservoir straddles the county line and some agricultural land within San Luis Obispo County is irrigated from the Santa Maria Groundwater Basin replenished by the reservoir. The multiple-purpose Twitchell Reservoir has a total capacity of 224,300 acre-feet. It stores floodwaters of the Cuyama River, which are released as needed to recharge the ground-water basin and to prevent salt water intrusion. The reservoir supplies on average 32,000 AFY of recharge to the Santa Maria Groundwater Basin, though this value fluctuates significantly relative to annual precipitation. Because the reservoir is managed for flood control and groundwater recharge, the reservoir is empty much of the time. A majority of the groundwater flows towards the ocean, though a small gradient flows seasonally to the Nipomo Mesa.

OTHER WATER SUPPLY SOURCES

Other water supply sources in the County include seawater/brackish water desalination, recycled water (from municipal wastewater treatment plants), water conservation, and decentralized water supply opportunities.

Desalination

In the County, there is only one operating desalination facility, that being the City of Morro Bay's desalination plant. In the past the City has used the salt water reverse osmosis (SWRO) treatment plant to treat water from saltwater wells and to remove nitrates from fresh water wells. Recently the City completed the installation of two 450 gallons per minute (gpm) brackish water reverse osmosis (BWRO) treatment trains. The addition of these treatment processes will enable the City to treat both fresh water and salt water wells simultaneously, and will also reduce the energy usage of the facility as well. The SWRO trains are designed to produce approximately 645 AFY of potable water from sea water. The BWRO system is capable of treating the entire 581 AF of Morro Basin groundwater that the City can extract by permit.

Other Desalination Projects. The Cambria CSD has been striving to develop a seawater desalination plant to meet existing and future water demands. This plant, if implemented, is expected to produce up to 602 AFY. This plant will operate during the summer season to augment supply during the summer and high demand period (from summer tourism). A recycled water system is also planned, with an estimated 180 AFY made available for unrestricted irrigation use.

Three agencies, the City of Arroyo Grande, the City of Grover Beach, and the Oceano Community Services District (Agencies), participated in the evaluation of a potential drought-proof water supply, seawater desalination, to supplement their existing potable water sources. Currently, all three Agencies receive water from various sources, including: the California State Water Project, Lopez Lake Reservoir, and groundwater from the Arroyo Grande Plain/Tri-Cities Mesa Groundwater Basin. Recent projections of water supply shortfalls in the region motivated the Agencies to conduct a more detailed study of desalination as a supplemental water supply. The study focused on utilizing the existing South San Luis Obispo County Sanitation District's (SSLOCSD) wastewater treatment plant site to take advantage of utilizing the existing ocean outfall, while having the plant located near the ocean seawater source. The feasibility study, completed in 2008, was based on a 2,300 AFY seawater desalination facility. Some of the major points of interest and concern of this study include:

- Some 20 or more beach wells may be needed to provide enough seawater to produce the 2,300 AFY potable water.
- Permitting and environmental issues could be complex, and implementation could take 8 years or longer.
- Initial capital cost could be in the range of $35 million, and customer rates could be impacted by 18% to over 100% to fund the project, and would cost in the neighborhood of $2,300 per AF or more, on a 20-year life cycle basis.

Water Recycling

There are several purveyors and agencies that recycle municipal wastewater in the County. Details of each purveyor or sanitary agency's recycled water program is discussed in detail in the corresponding sections later in this chapter. Recycled water qualities range from secondary quality (as defined by Title 22 CCR) to the highest level of treatment, tertiary 2.2 quality for unrestricted use. The most established water recycling program in the County is that of the City of San Luis Obispo. The City currently delivers 135 AFY to nearby golf courses, schools and commercial establishments, with expectations of augmenting up to 1,000 AFY of potable water with recycled water for irrigation. The City also must maintain discharge to San Luis Obispo Creek, and this flow amounts to approximately 1,800 AFY. Other water recycling projects in the County include:

- Nipomo CSD (Blacklake WWTP, Southland WWTP)
- California Men's Colony (Dairy Creek Golf Course)
- Templeton CSD (Meadowbrook WWTP/recharge Salinas River underflow)
- City of Atascadero WRF (Chalk Mountain Golf Course)
- Rural Water Company (Cypress Ridge Golf Course)
- Woodlands MWC (Monarch Dunes Golf Course)

Water Recycling Studies and Potential Future Recycling Projects. Numerous agencies have undertaken recycled water feasibility studies, to determine the viability of developing recycled water projects. Such agencies include, but may not be limited to:

- San Simeon CSD
- Cambria CSD
- City of Morro Bay/Cayucos Joint WWTP
- City of Paso Robles
- South San Luis Obispo County Sanitation District (SSLOCSD) WWTP
- City of Pismo Beach
- Avila Beach CSD/Port San Luis
- Los Osos CSD

SSLOCSD Recycled Water Feasibility Study Update. In 2001, the SSLOCSD conducted a recycled water feasibility study, with the assistance of State SRF grant funds. The South San Luis Obispo County Sanitation District (SSLOCSD) provides wastewater services to the Cities of Arroyo Grande and Grover Beach, the community of Oceano, and a small amount of unincorporated County territory.

Presently the SSLOCSD facility has a wastewater treatment capacity of 5.0 MGD (5,600 AFY). The treatment facility currently processes 2.8 MGD (3,136 AF/YR) of wastewater from the service area. Additionally, the City of Pismo Beach shares the use of the effluent outfall line discharging approximately 1.2 MGD in addition to the District's flow. The City of Pismo Beach wastewater plant has a permitted capacity of 1.75 mgd.

The updated study, completed in 2008, included "traditional" alternatives to irrigate turf and landscaping with secondary (where allowed) and tertiary effluent. Brief summaries of these additional alternatives are as indicated in the following paragraphs. A summary of costs is presented in Table 2.2 (taken from the Recycled Water Feasibility Study Report in its entirety).

- Stream flow augmentation. Tertiary recycled water would be piped to just below Lopez Dam, and discharged to Arroyo Grande Creek, thus "freeing up" possibly 4,200 AFY water that must otherwise be released from Lopez Dam for environmental stream flow. Due to projected high chloride levels, the alternative would likely require reverse osmosis treatment or other means of reducing overall TDS and chloride levels.
- Agricultural Irrigation There are approximately 3,000 acres of agricultural land in production, with in 3 miles of the SSLOCSD WWTP. Upgrading the plant to produce tertiary 2.2 effluent, and using the recycled water for crop irrigation could utilize most if not all of the effluent produced at the WWTP. Such a project, similar to any large-scale recycling project, requires a significant amount of planning, public education and outreach in order to be successful.
- Groundwater Recharge/Indirect Potable Reuse. The study evaluated possible well sites that could be used to re-inject highly treated recycled water in the groundwater basin, in compliance with CDPH groundwater regulations. Such water, after adequate residence time, and meeting the total organic carbon requirements, could be withdrawn from the aquifer thus increasing the well production currently limited in the Five Cities area.

Table 2.2 – Summary of Costs, SSLOCSD Recycled Water Alternatives

Alternative	Capital Cost, $[b]	Cost, $/AFY[c]
1-1. Turf Irrigation in SSLOCSD service area south of Hwy 101	$16,00,000	$11,600
1-2. Turf Irrigation, SSLOCSD and expanding north of Hwy 101	$19,000,000	$12,000
2. Direct Crop Agricultural Irrigation	$23,000,000	$1,200 to 1,400[d]
3-1. Stream Augmentation/Tertiary Effluent	$15,000,000	$4,200
3-2. Stream Augmentation/MF-RO Process Water	$30,000,000	$1,500 to $,700[d]
4. Indirect Potable Reuse	$38,000,000	$1,700 to 2,000[d]

[a] Costs do not include seasonal storage (where required), user on-site modifications, and other incidental costs to User
[b] Year 2008 dollars, rounded to nearest $1 million.
[c] Annualized costs/life cycle cost basis, 20 year life, 5% inflation.
[d] Low range based on possible Title XVI grant funding at 25%.

It should also be noted that this Report included discussions on opportunities for funding such recycled water projects. Funding opportunities included:

- Title XVI (Water Reclamation and Reuse) Program, can fund overall up to 25% of total project costs.
- State Revolving Fund Program/Water Recycling Funding Program.

- It was noted that other opportunities existed at the time of the report, for possible economic stimulus finding. Opportunities for such funding, however, are slim given that projects were to be "shovel ready", and many agencies are competing for funding.
- In January 2010, the cities of Arroyo Grande and Pismo Beach initiated a joint study of recycled water feasibility to focus on alternatives to deliver secondary effluent to the Arroyo Grande Cemetery and the Caltrans Highway 101 median. This study is expected to be complete in April 2010.

Water Conservation

Water conservation programs are being implemented throughout the County. Most purveyors established water conservation programs during a prolonged drought in the early 90s. In the current drought, purveyors have been aggressively promoting conservation measures to their customers. Many have made mandatory conservation requirements part of the building code and others have provided incentives for voluntary conservation. Certain conservation measures are required as part of the State's Urban Water Management Plan (UWMP) program. Two voluntary organizations assist members to implement these and other conservation measures. The conservation element of the UWMP and the programs of the two agencies are described below.

Urban Water Management Plans: California's Urban Water Management Planning Act requires that every urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 acre-feet of water annually, should prepare and implement a plan (UWMP) to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. The Act requires that an UWMP contain a discussion of a water purveyor's water Demand Management Measures (DMMs), including a description of each DMM currently being implemented or scheduled for implementation, the schedule of implementation for all DMMs, and the methods, if any, the supplier will use to evaluate the effectiveness of DMMs. The Urban Water Management Planning Act identifies 14 specific DMMs:

1. Water conservation coordinator;
2. Water Survey Programs for single-family residential and multi-family residential customers;
3. Residential plumbing retrofit;
4. System water audits, leak detection, and repair;
5. Metering with commodity rates for all new connections and retrofit of existing connections;
6. Large landscape conservation programs and incentives;
7. High-efficiency washing machine rebate programs;
8. Public information programs;
9. School education programs;
10. Conservation programs for commercial, industrial, and institutional accounts;
11. Wholesale agency programs;
12. Conservation pricing;
13. Water waste prohibition; and
14. Residential ultra-low flush toilet replacement programs.

The UWMP must discuss each of these potential DMMs and any other measures the supplier is implementing or has scheduled for implementation through a five-year period. The entire UWMP is to be updated every five years. If a particular DMM is not scheduled for implementation by the

water supplier, the UWMP must include a cost-benefit evaluation that takes into consideration the economic, environmental, social, health, customer impact, and technological factors.

In addition to DMMs, the UWMP must also include a Water Shortage Contingency Plan, containing information on actions to be undertaken in response to water supply shortages of varying severity. These actions generally begin with voluntary conservation measures during periods of moderate shortage or high demand and progress to increasingly stringent mandatory restrictions on water use during severe shortages. Most purveyors have put some level of these Contingency Plans into place during the current drought.

Partners in Water Conservation: Partners in Water Conservation (PIWC) is a group of San Luis Obispo County water purveyors working together to provide the community with valuable information and educational opportunities on how to use water more efficiently, both indoors and outdoors. Members include:

City of Arroyo Grande
City of Grover Beach
City of Morro Bay
City of Paso Robles
City of Pismo Beach
City of San Luis Obispo
County of San Luis Obispo
Atascadero Mutual Water Company
Cambria Community Services District
Los Osos Community Services District
Nipomo Community Services District
Templeton Community Services District

The partnership has sponsored a number of programs and publications to promote conservation in the communities they serve. Some of their efforts include:

- Features of a Sustainable Landscape (brochure)
- Water Conserving Plants for Northern San Luis Obispo County (directory)
- Water Wise Landscape Workshops held annually in the summer
- Regular meetings of the membership to coordinate activities and to share lessons learned.

In addition to joint activities, each of the members has water conservation programs in their service areas which are described in the discussion for each purveyor.

California Urban Water Conservation Council: The California Urban Water Conservation Council (CUWCC) was created to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities. The Council's goal is to integrate urban water conservation Best Management Practices (BMPs) into the planning and management of California's water resources. Members pledge to develop and implement 14 comprehensive conservation BMPs. These are identical to the 14 DMMs required by the UWMP Act. CUWCC offers an extensive array of resources to assist members in the their conservation goals, including model municipal codes, sample surveys, conservation publications, descriptions of lessons learned from other members, and variety of technical resources to assist water suppliers in planning, estimating costs, and determining impact of BMP implementation.

SLO County members include:

- City of Pismo Beach
- City of San Luis Obispo
- Central Coast Water Authority
- Golden State Water Company
- Atascadero Mutual Water Company
- Cambria Community Services District
- Nipomo Community Services District
- Templeton Community Services District

Decentralized Supply Opportunities

Considering that the majority of potable water supply at the household level is consumed for non-potable uses such as toilet flushing and outdoor irrigation, there are opportunities for homeowners and businesses to develop their own non-potable water sources on a small scale basis. Along those lines, two "green" technologies that have been given significant attention recently are graywater recycling and stormwater reuse/rainwater harvesting.

Typical graywater systems harvest wastewater from households or buildings that has not come into contact with toilet or kitchen sink waste. The harvested water is then filtered for distribution in underground irrigation systems. More elaborate systems can be designed to use graywater for toilet flushing, though plumbing codes make this option more complex. The San Luis Obispo Coalition of Appropriate Technology (SLO-COAT) as recently published a homeowner's guide to the design and construction of relatively simple graywater systems that can be used for outdoor irrigation. The state is also revising plumbing codes to make graywater systems easier to install.

Promotion of stormwater reuse has been adopted the SWRCB as part of the latest strategic plan, nad is part of the State's recently adopted Water recycling Policy. Stormwater reuse is considered a locally available, sustainable supply, consistent with implementation of the California Global Warming Solutions Act of 2006, and other State and regional efforts.

Rainwater harvesting is a form of stormwater reuse, usually practiced on a small scale by homeowners. Rainwater harvesting is the process of intercepting stormwater runoff from a surface (e.g. roof, parking area, land surface), and putting it to beneficial use. Intercepted stormwater can be collected, slowed down, and retained or routed through the site landscape using cisterns, microbasins, swales and other water harvesting structures. Water harvesting reduces dependence on dwindling groundwater reserves and expensive imported water. Capturing and using stormwater runoff also reduces site discharge and erosion, and the potential transport of stormwater pollutants.

Stormwater reuse can be promoted in a variety of ways. For example, the city of Tucson, Arizona became the first municipality in the country to require developers of commercial properties to harvest rainwater for landscaping. The new measure – approved by a unanimous vote by the City Council – requires that new developments meet 50% of their landscaping water requirements by capturing rainwater. The new rule goes into effect June 1, 2010.

Consumer education is also a common approach to promoting stormwater capture and reuse. The City of Tucson has published its Water Harvesting Guidance Manual and the Texas Water Development Board has published the Texas Manual on Rainwater Harvesting. At the local level, SLO-COAT is planning to release a homeowner's guide to Low Impact Development which will emphasize simple techniques for stormwater capture and reuse at the household level.

The Atascadero Mutual Water Company has instituted a rebate program aimed at reducing landscape irrigation. One of the conservation measures supported by the program is the

installation of rainwater harvesting systems at the household level, providing a rebate of up to $250 for storage tanks or cisterns designed to capture rainfall for use during dry periods.

Cambria CSD requires that residences built on properties larger than 8,000 sq ft. must have non-potable water collection cisterns for irrigation watering. 22 cisterns have been installed to date.

Given the large quantity of usable water that flows into household drains or runs off rooftops in the County, consideration should be given to further promoting stormwater reuse and graywater recycling as supplemental sources of water supply for landscape irrigation and other domestic uses.

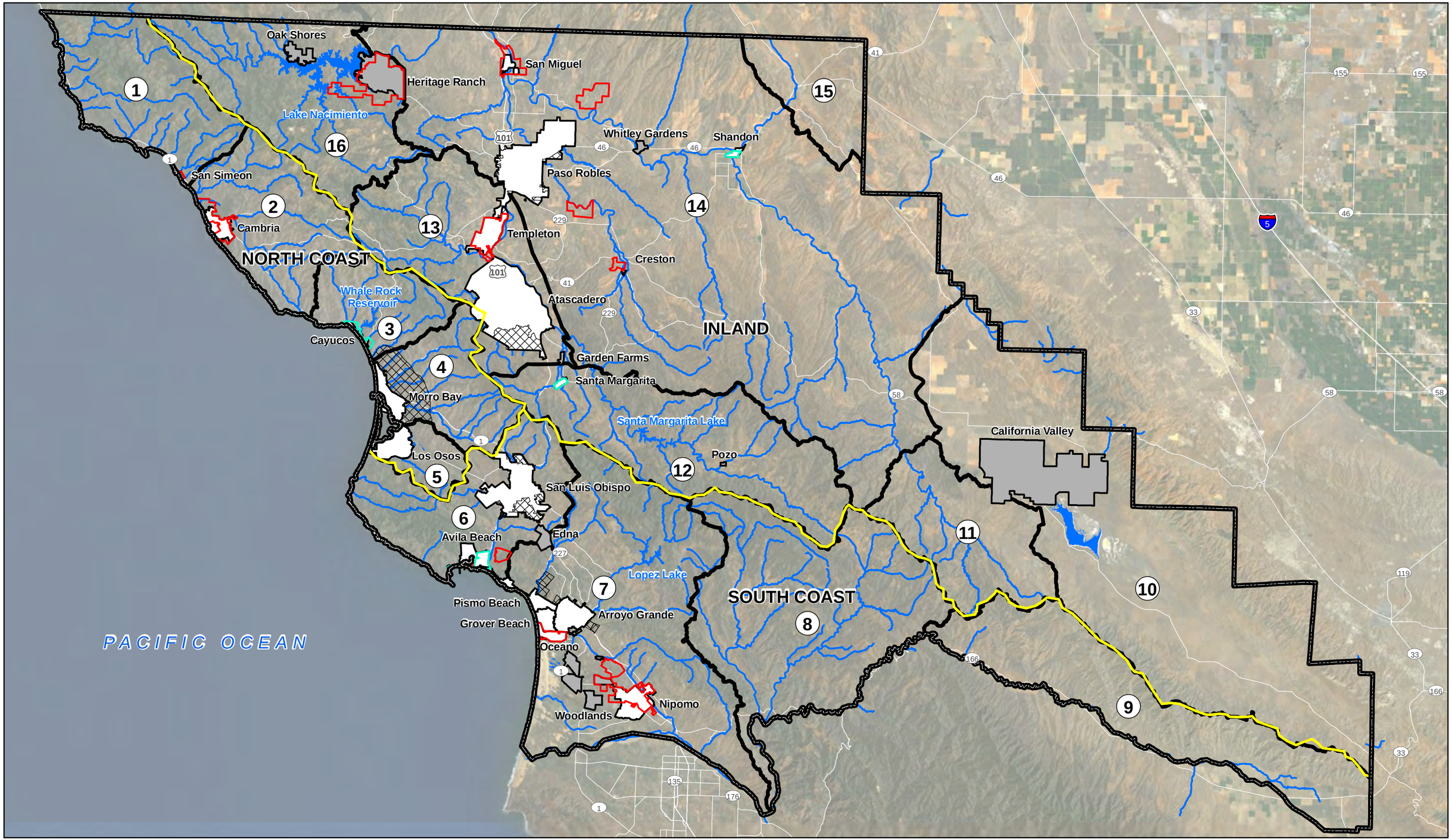
WATER PURVEYORS OF SAN LUIS OBISPO COUNTY

This section describes the existing and future water supplies and demands for the larger water purveyors throughout the County. Supply and demand for consumers served by smaller water purveyors are included in the discussion and analysis of overlying users. Figure 3.2 depicts an overview of the County, major cities and agencies germane to this master water plan, water regions and sub-regions.

NORTH COAST SUBREGION

This section describes water supply, water demand, and water quality for Water Planning Areas 1 to 4:

- San Simeon WPA 1: San Simeon CSD
- Cambria WPA 2: Cambria CSD
- Cayucos WPA 3: Cayucos Area Water Organization (Morro Rock Mutual Water Company, Paso Robles Beach Water Association, CSA 10A)
- Morro Bay WPA 4: City of Morro Bay and Chorro Valley Water System (California Men's Colony, Cuesta College, Camp San Luis Obispo, County Operations Center/Office of Education)
- Los Osos WPA 5: Community of Los Osos and vicinity (Golden State Water Company, Los Osos CSD, S&T Mutual Water Company).



San Luis Obispo County Flood Control and Water Conservation District

MASTER WATER PLAN

PROJECT BASEMAP

Legend

- County Boundary
- County Sub-Region
- Urban Reserve Line
- Village Reserve Line
- CSD
- CSA
- SOI
- Water Body
- Major Rivers/Streams

FIGURE 3.2

San Simeon WPA 1

San Simeon Community Services District

Source: *November 2007 Water System Master Plan and Wastewater Collection System Evaluation; Discussion with Water Committee August 2010.*

The San Simeon Community Services District (San Simeon CSD) supplies its customers with domestic water service, wastewater service, and fire protection, among other services.

Land Use and Service Population. San Simeon is located on the central coast of San Luis Obispo County, along Highway 1 north of Cambria. The San Simeon CSD serves an area of approximately 100 acres, which includes approximately 320 residential dwelling units and over twice that number of hotel/motel units. Though the permanent residential population is estimated at 247, the tourist population can outnumber locals and varies with the season.

Existing (2006) Population: 247 permanent residents and 22.72 acres commercial/retail.

Build-out Population: 740 permanent residents and 42.54 acres commercial/retail.

The build-out population is the upper range from the San Simeon Community Plan which assumes 530 dwelling units and 1.4 persons per DU.

Water Demand. Water demand is summarized as follows:

- 2007 Average Day Demand (ADD): 108 AFY (0.096 MGD)
- 2007 Gross Per Capita Demand: 388 gpcd
- 2007 Residential Per Capita Demand: 72 gpcd
- Maximum Month Demand: 2.0 times ADD
- Future ADD (2025): 224 AFY (0.200 MGD.) based on land use water duty factors
- Future ADD (Build-out): 250 AFY

The relatively high gross per capita demand is due to the small resident population compared to the size of the overall population (tourists and residents) that depends on San Simeon CSD water. The commercial/retail sector constitutes over 70% of the annual demand. Build-out water demand is based on 3,426 gpd/acre for the non-residential sector and 72 gpcd consumption for residents.

Water Supply - Existing. The San Simeon CSD depends on groundwater from the Pico Creek underflow. Though the SWRCB permits extraction of up to 140 AFY, groundwater studies indicate a safe yield of only 120 AFY, with 16 AFY used at Hearst Ranch. This leaves the San Simeon CSD with a safe yield of 104 AFY.

Water Supply – Future: The Master Plan does not suggest future water supply alternatives, although historically San Simeon CSD has been water-short numerous times during dryer years. As a result of the limitations and unreliability of the supply, a moratorium on development has been in place since 1991. The San Simeon CSD plans to move forward with upgrading its wastewater treatment facility to ultimately be able to use the effluent as recycled water. Desalination, either jointly with Cambria or separately, or coordination with the Hearst

Ranch on a groundwater source of supply to meet build-out needs are options under consideration.

Water Conservation: The San Simeon CSD has adopted an ordinance establishing a 3-stage conservation plan based on water supply conditions. The community has also gone through a retrofit program and the hotels and restaurants continuously have water conservation measures in place.

Water Quality. Contamination of water supply wells due to seawater intrusion is a major water quality concern in the basin (Cleath, 1986). Lowering of groundwater levels below sea level in the basin during the summer months when creek flows are absent and pumping is active can result in the landward migration of the sea water/fresh groundwater interface. The landward flow of seawater into the estuary during winter high tides is also a contributing factor. Although seawater intrusion has increased salinity levels in groundwater pumped from local water supply wells, it has not degraded water quality to the point that the water is non-potable. The 2008 Consumer Confidence Report for two San Simeon CSD wells reported that measured concentrations of all analyzed contaminants were below their respective Maximum Contaminant Level (MCL) or Regulatory Action Level (AL) values.

Cambria WPA 2

Cambria Community Services District

Source: *2005 Cambria CSD Urban Water Management Plan, 2008 Water Master Plan EIR, Discussion with Engineering Manager August 2010*

Cambria is an unincorporated community located in the coastal region of central California, in the northwestern portion of San Luis Obispo County. Cambria is located along Highway 1, approximately 35 miles north of San Luis Obispo. The Cambria Community Services District (Cambria CSD) is an independent special district that provides water, wastewater, fire and other community services to its customers.

Land Use and Service Population. Cambria's URL encompasses approximately 2,351 gross acres, with a net acreage of approximately 1,790 acres, not counting the land in the road rights of way and beach areas along the ocean. Cambria primarily consists of residential uses with combinations of commercial and public institutional uses along Main Street. The surrounding outlying areas are devoted to agricultural uses, primarily grazing, which contribute to the unique setting of Cambria.

Existing (2007) Population: 6,284 (based on 3,786 dwelling units and 2.21 persons/DU)

Build-out Population: Ranges between 8,257 and 13,547 depending on assumptions; current direction in Cambria is to plan for 7,719 (based on 4,650 dwelling units and 1.66 persons/DU).

Water Demand. Water demand is summarized as follows:

- 2003 Average Day Demand (ADD): 815 AFY (0.73 MGD)
- 2003 Per Capita Demand: 90 gpcd (residential)

- Build-out ADD[2]: 1,514 AFY (1.35 MGD) at 175 gpcd (gross)

Water Supply - Existing. To meet water demand, the Cambria CSD operates wells that draw from local groundwater aquifers along the San Simeon and Santa Rosa Creeks. Cambria CSD's water rights are subject to the regulatory authority of the State Water Resources Control Board (SWRCB), and to a certain extent, conditions imposed under development permits issued by the California Coastal Commission (CCC). The current water rights diversion permits from the SWRCB allow Cambria CSD to pump a maximum of 1,118 acre-feet (AF) of water during the wet season, and 630 AF of water during the dry season[3], from both the San Simeon and Santa Rosa Basins. However, the current CCC Development Permit limits the total annual diversion from both creeks to no more than 1,230 AF of water. Additionally, the dry season date, duration, and beginning groundwater levels, limit the actual availability of groundwater from both basins. Currently the water supply of Cambria CSD is at a Level III severity rating (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands.

Water Supply – Future: To meet the additional needs towards build-out and to increase water supply reliability, the Cambria CSD plans to construct a Seawater Desalination Plant to produce up to 602 AFY. This plant would operate during the dry season to augment supply during that period of high demand. A decentralized recycled water program is also planned, with an estimated 180 AFY made available for unrestricted irrigation use.

Water Conservation: Historically, the Cambria CSD has used conservation as a means to extend its existing supplies. Since 1988, a plumbing retrofit program has required the installation of water efficient fixtures upon resale or remodel of a home. The program was expanded in 1990 to require water efficient fixtures for new construction and for existing buildings that require a new connection permit. Since that time, the Cambria CSD has initiated a number of other conservation measures, including rebate programs and plumbing requirements that have resulted in an estimated savings of 18.9 AFY. Cambria CSD is a member of the California Urban Water Conservation Council (CUWCC) and Partners in Water Conservation.

Water Quality. In 1999, the Cambria CSD learned of an MTBE contamination plume that was spreading towards its Santa Rosa well field. As a result, its existing Santa Rosa well field was shut down and an emergency well and treatment plant were constructed further upstream. The new treatment plant provides filtering, disinfection, as well as the removal of iron and manganese. The adjustments made in well locations and the additional treatment provided for Santa Rosa Creek well have resulted in delivery of water to customers that meet both primary and secondary drinking water standards.

Cayucos WPA 3

Cayucos Area Water Organization

Source: *2007 Water Management Plan Update and 2003 CSA 10A Water System Master Plan*

[2] The Water Master Plan presents several build-out scenarios with a range of annual demand projections from as low as 1,009 AFY to as high as 2,714 AFY. The above figure reflects a planning target for Scenario 4, a 50% quality of life increase in demand allowance and a 1.66 people/unit occupancy rate (Table 2.7, Assessment of Long-Term Water Supply Alternatives).

[3] The dry season begins on May 1 for the Santa Rosa basin and is tied to creek flows in the San Simeon basin. The dry season ends on October 31 for both basins.

The Cayucos Area Water Organization (CAWO) is made up of three member utilities and a cemetery district, the Morro Rock Mutual Water Company (Morro Rock MWC), the Paso Robles Beach Water Association (PRBWA), County Service Area 10A (CSA 10A) and Cayucos Cemetery District (CCD). CSA 10 operates a surface water treatment plant which delivers filtered and chlorinated water to the CAWO members. The three utility purveyors supply their customers with domestic water service, landscape irrigation and fire protection, among other services. The CCD uses the water for irrigation purposes.

Land Use and Service Population. Cayucos is a small oceanfront community with a mixture of vacation homes and full-time residences. A commercial sector serves both the residential and tourist population.

Water Demand. Water demand is summarized as follows:

- 2007 Average Day Demand (ADD): 432 AFY
- 2007 Per Capita Demand: 87 gpcd
- Build-out ADD: 641 AFY

Water Supply - Existing. CAWO members receive water from Whale Rock Reservoir with a maximum total annual entitlement of 600 AFY, allocated to each member as follows:

- Morro Rock MWC: 170 AFY
- PRBWA: 222 AFY
- CSA 10A: 190 AFY
- CCD: 18 AFY

Several wells are also available to CAWO members. The wells are primarily used as emergency back-up sources. Most of the wells extract water from an aquifer that is replenished by recharge from Old Creek and Whale Rock Reservoir. Water drawn from these wells is also limited by the 600 AFY entitlement from the Whale Rock Reservoir. One Morro Rock MWC well draws from Little Cayucos Creek Valley and is not subject to this limitation.

Water Supply – Future: CSA 10A has procured an additional entitlement of 25 AFY through the Nacimiento Water Supply Project. This water will be taken from the Whale Rock Reservoir in an exchange agreement with the City of San Luis Obispo. The agreement allows for up to 90 AFY to be exchanged, which may be a way to address any future needs of the CAWO.

Water Quality. Aluminum has occasionally been found in delivered water at levels that exceed the secondary MCL of 200 ppb. The high aluminum levels are due to residue from the water treatment process. Better control of the treatment process has resulted in lower levels of aluminum in recent water quality tests. Manganese has been found in raw water from the CAWO well at levels that exceed the secondary MCL of 50 ppb. As this well contributes less than 1% of the total supply, manganese is not detectable in delivered water.

Morro Bay WPA 4

City of Morro Bay

Source: *City of Morro Bay 2005 UWMP and 2007 Morro Bay Nitrate Study*

The City of Morro Bay provides water service to over 5,500 connections, including over 10,000 residents, businesses, industrial facilities, and public facilities.

Land Use and Service Population. The City of Morro Bay is located along the central coast of California in San Luis Obispo County. Its coastal location attracts a large number of tourists during the summer and on weekends. The motels, hotels, restaurants, State Parks, and other facilities serving the tourist population add a significant water demand to the local population living primarily in single-family residences.

Existing Population. The population estimate in 2005 was 10,270 according to the Urban Water Management Plan.

Build-out Population. The Urban Water Management Plan uses a build-out population of 12,900, estimated to be achieved in 2028.

Water Demand. Water demand is summarized as follows:

- 2005 Average Day Demand (ADD): 1,620 AFY (1.45 MGD)
- 2005 Per Capita Demand: 141 gpcd, based on "dry year" demand
- Maximum Month Demand: 1.27 times ADD
- Future ADD: 2,040 AFY (1.82 MGD.)

Water Supply - Existing. The City has multiple sources of potable water. Two groundwater basins, the Chorro and the Morro, were used exclusively prior to the City's connection to the State Water Project. The City also operates a desalination plant and has mutual aid agreements with the California Men's Colony and the Whale Rock Commission for emergency supply.

The groundwater basins have encountered several water quality issues, including seawater intrusion, MTBE contamination, and excessive nitrates, forcing the City to reduce extraction from groundwater sources. In addition, the SWRCB permitted allocation allows withdrawals from the Chorro Basin only when surface flows exceed 1.4 cfs. Nevertheless, strategic management of these sources should allow the City to reliably extract 581 AFY from the Morro Basin and 566 AFY from the Chorro wells, for a total of 1,147 AFY, even in dry years.

The City contracts with the District for 1,313 AFY of State Water. The City also has a Drought Buffer Water Agreement with the District for 2,290 AFY that will allow the City to receive its full 1,313 AFY allocation when the SWP can deliver at least 36.5% of contracted allocations (see SWP discussion). The City has been noted as being potentially interested in an additional 750 AFY of State Water and 1,500 AFY of Drought Buffer, should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

The SWP shuts down for annual maintenance activities each fall/winter during which the City has used its alternative supplies. In 2008, the SWP shutdown took place when groundwater quality issues were limiting the City's use of well water. The shortfall was made up for through an agreement with the California Men's Colony to provide the City with water during that period.

The desalination plant was constructed in 1993 as a secondary supply during a drought. It has been used intermittently since that time, but raw water quality problems have limited its use.

Water Supply – Future: Plans to modernize the desalination plant should restore capacity to 645 AFY. Future needs could be met by doubling plant capacity.

The jointly operated Morro Bay - Cayucos Sanitary District Wastewater Treatment Plant is slated for a major upgrade in 2014. Production of tertiary effluent will be provided, and thus will provide increased opportunity for future water recycling to augment water supplies.

Water Conservation. Since the early 1990s, the City has implemented a rigorous water conservation program to promote more efficient use of existing water resources. Elements of the conservation program include:

- Progressively tiered water rate structure
- Creation of a developer funded low-flow toilet retrofit program
- Adoption of multi-level drought response program with increasing limits on irrigation and non-essential uses of potable water
- Promotion of many of the Water Conservation BMPs to be pursued by all contractors of the State Water Project, including an ongoing rebate program for homeowner installation of water-efficient appliances.

The program has had a significant impact, reducing average per capita water demand from 154 to about 129 gpcd (141 gpcd in dry years) or 8 to 16%. As noted in the City's 2005 sewer collection system Master Plan Update, flows in 2005 were lower than in 1986, even with a 10% increase in population.

The City is a member of Partners in Water Conservation

Water Quality. As mentioned above, groundwater quality issues are an ongoing concern, but the City's ability to obtain water from multiple sources and to blend them as needed to meet State Drinking Water Standards has lessened the concerns that water quality issues could hamper the City from meeting future water demands.

Chorro Valley Water System (California Men's Colony, Camp San Luis Obispo, Cuesta College, County Operations Center/Office of Education)

Source: *2003 Chorro Water Study and personal communication with CMC Plant Manager*

The California Men's Colony (CMC) is a state prison located on Highway 1 west of San Luis Obispo. The CMC operates its own water supply, treatment and distribution system for inmates and staff. CMC also wheels water to Camp San Luis Obispo (a National Guard campus), Cuesta College, County Operations Center (includes Fleet Services, Water Quality Lab, Juvenile Detention Center, County Jail, Office of Emergency Services), and County Office of Education. This system is also known as the Chorro Valley Water System.

Service Population. The CMC water system serves an inmate and staff population of 8,456. No expansion of this service population is planned, though a reduction in staff and inmate population is currently being considered by the legislature. Other population summaries include:

- Cuesta College. The College can service up to 6,500 students; however, on any given day, it is estimated that student/faculty population is around 1,500.

- Camp San Luis Obispo: Total population/employees on Base was not available.

Water Demand Summaries. The following summarizes demands for California Men's Colony, Camp San Luis Obispo, Cuesta College and County Operations Center/Office of Education (SLO Co). Other minor water demands for the fire station, Achievement House and Foster Ranch (6.22 AFY in total) are excluded from the individual summaries below, but are included in the overall summary.

California Men's Colony:
- 2008 Average Day Demand (ADD): 1,135 AFY (1.0 mgd)
- 2008 Per Capita Demand: 120 gpcd (based on current population)
- Maximum Month Demand: 100.3 AF (1.05 mgd)
- Future ADD (2025): Estimated to remain constant at 1,135 AFY

Camp San Luis Obispo:
- 2008 Average Day Demand (ADD): 138 AFY (0.12 mgd)
- 2008 Per Capita Demand: not known
- Maximum Month Demand: 21.8 AF (0.23 mgd)
- Future ADD (2025): Estimated to remain constant at 138 AFY
- NOTE: In review of 2009 water use demands through June 2009, Camp SLO water demands were approximately 30% lower than the same interval for 2008.

Cuesta College:
- 2008 Average Day Demand (ADD): 125 AFY (0.11 mgd)
- 2008 Per Capita Demand: ~75 gpcd (based on average attendance of 1,500 students)
- Maximum Month Demand: 19.2 AF (0.20 mgd)
- Future ADD (2025): Estimated to remain constant at 125 AFY (However Cuesta has been noted as being interested in an additional 10 AFY of State Water should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09))

SLO Co:
- 2008 Average Day Demand (ADD): 94.3 AFY (0.084 mgd)
- 2008 Per Capita Demand: Unknown
- Maximum Month Demand: 9.21 AF (0.097 mgd)
- Future ADD (2025): Estimated to remain constant at 94.3 AFY

Overall Summary:
- 2008 Average Day Demand (ADD): 1,499 AFY (1.34 mgd)
- 2008 Per Capita Demand: Not applicable
- Maximum Month Demand: 128.5 AF (1.35 mgd)
- Future ADD (2025): Estimated to remain constant at 1,499 AFY

Water Supply - Existing. CMC operates a 3.0 MGD water treatment facility at the Chorro Reservoir, and delivers water to Camp SLO, Cuesta College, and SLO Co. CMC, Camp SLO, Cuesta College, and SLO Co receive water from three sources (and a fourth source for emergencies), as follows:

- Chorro Reservoir: located approximately ¾ of a mile northeast of the CMC in the upper Chorro watershed. The reservoir and treatment plant were constructed by the US Army Corps of Engineers to provide water to Camp San Luis Obispo at the beginning of World War II. The net storage capacity of the Chorro Reservoir has decreased since it was constructed due to sedimentation, and is currently about 90 acre-feet, according to recent studies. Camp SLO holds the first 140 AFY entitlement to this surface water; during surplus water years, any excess to the 140 AFY is used by CMC. Flow must be maintained in Chorro Creek downstream of the reservoir for riparian habitat enhancement.
- Whale Rock Reservoir: CMC is one of three owners (Cal Poly and City of SLO are others) holding a partial entitlement to Whale Rock Reservoir. CMC owns an 11.24% share of the reservoir's capacity which allows them to withdraw approximately 420 AFY. Raw lake water is pumped from Whale Rock Reservoir in Cayucos via a 30-inch diameter steel water main to the three owners. CMC's turnout delivers water to the CMC water treatment plant for treatment, prior to delivery.
- State Water. CMC contracts with the District for 400 AFY of State Water. CMC also has a Drought Buffer Water Agreement with the District for 400 AFY that will allow CMC to receive its 400 AFY allocation when the SWP can deliver at least 50% of contracted allocations (see SWP discussion). Cuesta College contracts with the District for 200 AFY of State Water and 200 AFY of Drought Buffer; however, CMC receives 60 AFY of this 200 AFY allocation per agreement for wheeling the water to Cuesta College. SLO Co has a 425 AFY allocation of State Water and a 425 AFY allocation of Drought Buffer; SLO Co never fully utilizes this allocation, so CMC utilizes all of the excess State Water allocation per agreement.
- Groundwater wells. CMC is in the process of rehabilitating one on-site well known as the Honor Farm Well (County Well No. 1). Once rehabilitated, this well water source will be allocated to Camp SLO; however, the water quality is such that it will be conveyed to the CMC water treatment plant, treated, and wheeled back to Camp SLO for use.
- The Salinas Reservoir waterline was extended from the Cuesta Water Tunnel to the Chorro Reservoir as part of the original improvements in World War II. The pipeline has only been used to convey water from the Salinas Reservoir to the Camp twice since construction.

Summary of Agreements. The following summarizes the pertinent water related agreements between the various agencies:

- CMC/Cuesta College. CMC and Cuesta College entered into Agreement on June 19, 2000, for water supply and wastewater treatment services. The term of this Contract is indefinite. As indicated above, Cuesta College has a 200 AFY SWP allocation; however, CMC at this time utilizes 60 AFY of this allocation. Cuesta's allocation includes 200 AFY drought buffer. Furthermore, in the event State Water is not available, CMC is obligated to supply Cuesta with "replacement" water in an amount equal to Cuesta's allocation of 200 AFY (not including the 60 AFY currently being utilized by CMC).
- CMC/Camp SLO: CMC agrees to process water at no cost to Camp SLO. Camp SLO has first rights to water from County Well No.1. In exchange, Camp SLO provides 25 AFY of Chorro Reservoir entitlement to CMC and CMC has free use of Camp SLO hospital and firing range.
- CMC/SLO Co: SLO Co provides up to 275 AFY from SLO Co's 425 AFY of State Water in exchange for wheeling the remaining 150 AFY. If SLO Co provides less than 275 AF, SLO Co will reimburse CMC for a pro rata share of potable water wheeling and capital

improvement costs to the WWTP. If CMC uses more than 275 AFY from SLO Co, CMC will reimburse SLO Co for variable costs of and excess State Water used. SLO Co will fund any needed improvements to CMC operated facilities if CMC wheels more than 150 AFY. CMC is responsible for measuring deliveries. SLO Co will reimburse CMC for wastewater treatment based on 80% of potable water used or metered Wastewater if meters are installed. Maximum CMC obligation for wastewater treatment is 240 AFY. Agreement is subject to conditions of State Water Supply Agreement. .

- SLO Co/State (CMC and Camp SLO): Allows State to test, develop and pump from SLO Co Well #1. Requires Camp SLO to execute two easements for SLO Co effluent lines. Requires State to develop well before 6/30/10. State to provide SLO Co 25 AFY after well is developed. State and SLO Co share pumped water equally after State uses first 150 AFY. Water provided to SLO Co by CMC to be Whale Rock Water. State may terminate agreement if well production is below 100 AFY or well water quality cannot be used. SLO Co may terminate agreement if State uses water for new non-government purposes.

Water Recycling. The CMC wastewater treatment facility, located southwest of the Cuesta College Campus, treats wastewater from CMC, Camp SLO, Cuesta College, and SLO Co. Currently, the WWTP provides up to 275 AFY of tertiary treated effluent to the Dairy Creek Golf Course, owned and operated by the County of San Luis Obispo. Recylced water is also used to provide a minimum flow of 0.75 cfs in Chorro Creek for riparian habitat enhancement.

Water Supply -Future. The California Department of Corrections/CMC is considering participation in the Nacimiento Water Project. CMC has contacted the District requesting from 200 AFY to 400 AFY of Nacimiento Water for future supply reliability and minor demand increases. Such allocation is available; however, it is uncertain at this time if they will participate due to costs and other factors. CMC has also expressed interest in any State Water that may become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

Water Quality. CMC delivers excellent quality drinking water to its customers, from the three surface water supplies (Whale Rock, State Water, and Chorro Reservoir). Water consistently meets all primary drinking water standards, and levels of nitrates are very low (<2.3 mg/L). Total dissolved solids ranged from 357 to 440 mg/L, with an average of 389 mg/L.

Los Osos WPA 5

Community of Los Osos (Los Osos Community Services District, Golden State Water Company, and S&T Mutual Water Company)

Source: *2002 Los Osos CSD Water Master Plan, GSWC files, 2009 CHG groundwater studies, Sea Water Intrusion in the Los Osos Groundwater Basin (presentation to RWQCB), and the ISJ Working Group's May 4, 2010 Los Osos Groundwater Basin Update*

The community of Los Osos lies within the unincorporated coastal area of San Luis Obispo County, just south of the City of Morro Bay. Los Osos is bordered on the northwest by the Morro Bay Estuary (an estuary of national importance) and Morro Bay State Park; to the east by Los Osos Creek and its riparian corridor; and to the south and southwest by the Irish Hills and Montana de Oro State Park. The Los Osos Valley lies to the east of the community.

The community of Los Osos has been subject to a building moratorium since 1988, which has resulted in only limited development in the community since that time. Upon completion of the wastewater project by the County, the moratorium may be lifted (subject to other resource issues such as water supply and habitat conservation) so that development can once again proceed under normal circumstances.

The following three water purveyors serve the community of Los Osos:

- Los Osos Community Services District (Los Osos CSD)
- S & T Mutual Water Company (S&T MWC)
- Golden State Water Company (GSWC)

Land Use and Service Population. Los Osos is an unincorporated community located in San Luis Obispo County, California. Los Osos consists of a mix of residential, commercial, agriculture, and recreational areas. Table 3.5 below, taken from various sources shows existing and future populations/connections in the service areas.

Table 3.5. Population Estimates and Connection Data for Urban Water Purveyors (2002 Los Osos CSD WMP, 2009 RMS and GSWC files)

Purveyor Name	Existing (2008) Population	Build-out Population
Los Osos CSD Water Service Area	8,500	9,324
S&T Mutual Water Co.	525	535
	Existing (2006) Connections	**Build-out Connections**
GSWC Service Area	2,648	4,381

Build-out projections for the GSWC service area have been revised in its updated Master Plan prepared in 2007. The revised plan projects that once the building moratorium is lifted, the number of water service connections will increase from 2,648 in 2006 to 4,381 by 2030.

Water Demand. Water demand is summarized in Table 3.6. Existing production is based on average production by purveyor from 2004 to 2008. The 2002 Los Osos CSD Master Plan projections for build-out demand were based on 130 gpcd for Los Osos CSD and 250 gpcd for the S&T MWC service area. Existing demand has averaged 100 and 160 gpcd respectively over the past five years. Based on these lower rates of demand and assuming continued implementation of water conservation practices, the build-out demands are expected to be lower than those presented in the 2002 Los Osos CSD Master Plan. GSWC Master Plan build-out demand projections are based on 4,381 connections at 0.398 AFY/connection.

Table 3.6. Existing Production and Build-Out Water Demand

Water Purveyor	Ex. Production (2004-08)		Build-Out Demand	
	(mgd)	(AFY)	(mgd)	(AFY)
Los Osos CSD	0.85	951	0.93	1,044
S&T MWC	0.084	94	0.086	96
GSWC	0.89	998	1.54	1,730
Total	**1.82**	**2043**	**2.56**	**2,870**

Water Supply - Existing. The sole source of water for the Community of Los Osos has been its groundwater basin. The Los Osos Valley ground water basin under existing conditions, with existing septic systems in place, and assuming no new water development, is estimated to have a yield of 3,200 AFY. This source is shared by the three water purveyors and the many overlying users in the valley. After subtracting 1,100 AFY in agricultural irrigation, private domestic use and golf course irrigation, the purveyors have available for their use an estimated 2,100 AFY of sustainable safe yield.

Water Supply – Future. Through the development of a Basin Management Plan, it is the goal, among others, of the ISJ Working Group, to "provide for a continuously updated hydrologic assessment of the Basin, its water resources and safe yield." The ISJ Working Group will be evaluating and identifying the management strategies to implement, in coordination with the County's wastewater project, in order to improve conditions in the Basin. Strategies under consideration include additional conservation, well relocation, use of shallow wells, nitrate removal, brackish water desalination, rainwater harvesting and graywater systems.

Water Conservation. The County Planning Department has implemented an indoor retrofit-upon-sale program as an action identified as a result of the Board certifying a Level of Severity III for the Basin. A mandatory fixture replacement program, which is a part of the wastewater treatment facility project, will replace all toilets and urinals in the wastewater service area (also known as the "Prohibition Zone") with low-flow devices, which is estimated to ultimately reduce overall water consumption by 20 to 25% with similar savings in wastewater flows. The objective of wastewater project's required water conservation program is to reduce indoor water use to 50 gallons per capita day within the wastewater service area.

GSWC promotes conservation by providing free water conservation kits to all customers. Their outreach program is highlighted by an educational series explaining the "Five Golden Rules" for water conservation, a series of video vignettes that explain simple ways that consumers can conserve water at home. GSWC also has a full-time Water Use Efficiency Manager and is a member of the California Urban Water Conservation Council (CUWCC).

Los Osos CSD is a member of Partners in Water Conservation.

Water Quality. Over the past three decades, Los Osos groundwater has been the focus of a number of studies. The main water quality concerns in the basin are nitrate and sea water intrusion. Excessive levels of nitrate in upper levels of the groundwater system have been attributed to the high density of individual septic systems. The RWQCB placed a development

moratorium on the community until a centralized wastewater treatment plant could be built. As these individual systems are replaced with a centralized wastewater treatment system, it is expected that nitrate levels in groundwater will decrease over the next few decades. In the meantime, purveyors have reduced pumping from the upper (contaminated) aquifer and have drawn increasing amounts from lower aquifers to deliver water suitable for drinking. Seawater intrusion, however, continues to be a growing concern, with the average horizontal rate of intrusion between 2005 and 2010, based on the 250 mg/l isochlor, being 700 feet per year.

SOUTH COAST SUBREGION

This section describes water supply, water demand, and water quality for Water Planning Areas 6 to 9:

- San Luis Obispo/Avila WPA 6: City of San Luis Obispo (includes County Airport), Cal Poly SLO, CSA 12 (includes Port San Luis), Avila Beach Community Services District, and Avila Valley (Avila Valley MWC and San Miguelito MWC).
- South Coast WPA 7: Golden State Water Company (Edna Valley), Northern Cities Management Area (City of Pismo Beach, City of Arroyo Grande, City of Grover Beach, and Oceano Community Services District),, Nipomo Mesa Management Area (Golden State Water Company - Nipomo, Nipomo CSD, , Rural Water Company, Woodlands MWC, and Conoco Phillips)
- Huasna Valley WPA 8
- Cuyama Valley WPA 9: Cuyama CSD

San Luis Obispo/Avila WPA 6

City of San Luis Obispo (including County Airport)

Source: *2005 City of SLO UWMP, 2009 Water Resources Status Report and 2010 General Plan Update, Chapter 8*

The City of San Luis Obispo is located in a coastal valley approximately 10 miles inland from the Pacific Ocean. The local Mediterranean climate provides for mild and dry summers and cool winters, with an annual average of about 23 inches of precipitation. Historically, the City has been the sole water purveyor within the City limits. This allowed the City to maintain uniformity of water service and distribution standards, and to be consistent in developing and implementing water policy. The City also serves the County Regional Airport and Cal Poly. Since Cal Poly has its own allocation of water from the Whale Rock Reservoir and has water resources that do not pass through the City treatment plant, the University is discussed separately.

Land Use and Service Population. The City has a 1% residential growth cap which assists in projecting future annual water needs. The current General Plan estimates that the build-out population for the City will be approximately 57,200 people.

Existing (2010) Population: 44,948

Build-out Population: 57,200

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 6,375 AFY (5.69 MGD)
- 2000-09 Running Average Per Capita Demand: 123.2 gpcd
- Build-out Demand used for planning: 123.2 gpcd
- Build-out ADD: 7,894 AFY (7.05 MGD)

Cal Poly demand figures are not included in the above.

Water Supply - Existing. The City of San Luis Obispo currently receives water from four sources, Salinas Reservoir (Santa Margarita Lake), Whale Rock Reservoir, local groundwater, and recycled water from the Water Reclamation Facility. The City has depended on imported supplies from Salinas Reservoir, located near the community of Santa Margarita, since 1944 and Whale Rock Reservoir, located near the community of Cayucos, since 1961. With the onset of the drought in 1986, resulting in decreasing surface water supplies, the City activated its groundwater sources in 1989. The City currently uses a small amount of groundwater (~2% of total) for potable purposes, but does not count groundwater yield in its water supply portfolio. Even though the estimated safe yield of the basin is 2,000 AFY, nitrate and PCE contamination and drought make groundwater a less than reliable source.

The Whale Rock Reservoir provides water to the City of San Luis Obispo, California Polytechnic State University, and the California Men's Colony as well as the town of Cayucos. The City staff work closely with staff from the other entities relative to water planning issues.

The safe yield from the Salinas and Whale Rock reservoirs was 6940 AFY in 2010, but diminishes approximately 10 AFY due to siltation.

Recycled Water Program. The City of San Luis Obispo's Water Reclamation Facility (WRF) currently receives approximately 4.5 mgd (5,040 AFY) wastewater flows. The WRF provides tertiary treated effluent to an extensive recycled water distribution system that delivers recycled water to a number of customers in the southern area of the City, including Damon Garcia Sports Park, Laguna Golf Course, Laguna Middle School, Laguna Lake Park, and commercial centers such as Irish Hills Plaza. Currently, recycled water irrigation demand is 130 AFY, and the City anticipates customer demands to expand by 10 AFY to an anticipated maximum of 1,000 AFY. The City must also maintain stream flow to San Luis Obispo Creek, at a minimum average daily flow of 2.5 cfs (1.6 mgd, or 1,800 AFY). Effluent total dissolved solids (TDS) quality of the recycled water is approximately 900 mg/L.

Water Supply – Future: Future water sources include:

- The Nacimiento Water Project, scheduled to go online in 2010, will supply up to 3,380 AFY to the City of SLO.
- The City's Water Reuse Project will deliver up to 1,000 AFY of recycled water for irrigation and other approved uses. The tertiary recycled water produced by the City of San Luis Obispo is suitable for most uses other than swimming and drinking.

The City accounts for its water supplies by designating a portion of what is available for primary supply, reliability reserve and secondary supply, primary being the average supply needed to meet build-out needs; reliability reserve being a 20% buffer for future unforeseen or unpredictable long-term impacts to the City's available water resources such as loss of yield from an existing water supply source and impacts due to climate change; and secondary being

the additional amount needed to supplement the primary and reliability supply to meet needs during short-term water supply shortages or peak demands.

Water Conservation: In June 1985, the City Council adopted the Annual Water Operational Plan policy which established a procedure to monitor the City's water supply situation on an annual basis. An integral component of the policy was the establishment of a water demand management or conservation program aimed at instituting corrective measures ahead of any projected water supply deficit to maintain a dependable supply during critically dry periods. Water demand management has played an ever increasing role in the overall water supply development and management strategies since 1985. In 1990, the City adopted a multi-source water policy in an attempt to solve both short term water shortages and meet the City's long term water needs. The importance of the implemented water efficiency programs has become even more apparent because of the difficulty in developing new water supply projects. Water conservation is now being viewed more as a water supply alternative.

The goal of the City's water conservation program is to make efficient use of its water resources to protect both short- and long-term water supply reliability by implementing water-efficiency programs which are consistent with accepted best management practices and comply with any State-mandated water use reductions, and mandatory water conservation measures when the City's water supplies are projected to last three years or less.

The City is a member of Partners in Water Conservation and the CUWCC.

Water Quality. Surface water from both reservoirs is considered to be of high quality. Groundwater quality has been generally good, but PCE contamination and occasional spikes in the nitrate content of well water has caused the City to provide additional treatment for individual wells or to take certain wells out of production.

Cal Poly San Luis Obispo

Source: *2007 Cal Poly Master Plan and EIR*

Cal Poly is located to the north of the City of San Luis Obispo. The university receives water from the City water system. Though it does not treat its own water, available supply is governed by entitlements from surface water sources.

Land Use and Service Population. Cal Poly occupies 1,321 acres with a campus core of 155 acres. The university also owns ranches and other outlying properties comprising an additional 8,357 acres. Water demand includes extensive agricultural and landscape irrigation requirements. The supply and demand discussion below applies to the 1,321-acre campus area.

2008 Population

- Students: 19,471
- Faculty 1,293
- Staff: 1,752
- Total: 22,516

Build-out Population
Approx Total : 23,100

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 1,040 AFY (0.93 MGD)
- The existing demand is based on actual consumption figures
- Build-out ADD: 1,557 AFY (1.39 MGD). This figure is from the Master Plan which uses 1999-2000 consumption rates as a worst-case water demand scenario. Conservation practices over the past decade and into the future will likely reduce build-out demand.

Water Supply - Existing. Cal Poly derives its water from groundwater sources and through surface water entitlements. For general use, the University owns entitlement to 33.7% of the storage capacity in Whale Rock Reservoir or approximately 13,707 acre-feet when the reservoir is full.

Cal Poly's portion of the safe yield from the reservoir is calculated as 1,384 AFY, but diminishes approximately 2 AFY due to siltation. However, their allotment is based on volume and not on a flow rate, so Cal Poly is not bound by this limit. The safe yield from groundwater is undocumented, but no decline in groundwater reserves have been noticed.

The City treats and delivers approximately 600 AFY to Cal Poly. The remainder is untreated water primarily used for agriculture and landscape irrigation, drawn directly from the Whale Rock raw water pipeline or from agricultural wells.

Water Supply – Future. Future demands for domestic needs will be met by increasing the proportion of Whale Rock water treated by the City. Agricultural needs could be met in various ways, including increasing irrigation efficiency, withdrawing land from cultivation, using more groundwater, and other management practices.

Water Quality. Surface water from Whale Rock is considered to be of high quality. Groundwater quality has been generally good, though increases in nitrate levels have been measured in groundwater flowing through the aquifer as it passes under the Cal Poly campus.

Avila Beach Community Services District

Source: *2006 Draft Water Master Plan*

The Avila Beach Community Services District (Avila Beach CSD) supplies its customers with domestic water service, wastewater service and fire protection, among other services.

Land Use and Service Population. Avila Beach is an unincorporated community located in San Luis Obispo County, California. Avila Beach consists of a mix of residential, commercial, agriculture, and recreational areas. The table below, taken from the draft 2006 Avila Beach CSD Water Master Plan, shows existing and future populations of the service areas.

Table 3.7. Population Summary

Description	Existing Population (1998)[2]	Existing Population (2006)	Build-out Population[3]
Residential Total	395	240	672[1]

Notes:
1. Based on an occupancy rate of 2.0 for residential developments (Table 2-2).
2. This existing population decreased since the UNOCAL cleanup of Avila Beach began in late 1998 and ended mid 2000.
3. The actual year is difficult to predict but based on the rate of development it is anticipated in about ten years.

Water Demand. Water demand is summarized as follows:

- 2006 Average Day Demand (ADD): 51 AFY (0.0455 MGD)
- 2006 Per Capita Demand: 190 gpcd
- Updated 2008 ADD: (provide if available)
- Maximum Day Demand: 2.0 times ADD
- Future ADD: 150 AFY (0.133 MGD.)

Water Supply. The water supply for the Avila Beach CSD is contracted through County Service Area 12 (CSA 12), and consists of both Lopez Reservoir and State Water allocations. Table 3.8 (Table 4-1 from the draft 2006 WMP) provides a summary of water supply allocations for Avila Beach CSD.

Table 3.8. Summary of Water Supply Allocations for Avila Beach CSD

Allocation, AFY			Supply Need, AFY		
Lopez Lake Reservoir	State Water	Total	Existing	Future	
				Excluding Tank Farm	Including Tank Farm
68[1]	100[1]	168	51[2]	150	170[2]

Notes:
1. District information
2. Future demand + Projected Tank Farm Development

Water Quality. Water quality for both Lopez Lake and State Water treated sources meets both primary and secondary standards for drinking water, though regular monitoring of the treatment process is necessary to make appropriate adjustments to account for seasonal changes in the quality of Lopez Lake water.

Avila Valley Mutual Water Company

Source: *2008 Avila Valley MWC Consumer Confidence Report and personal communication with Avila Valley MWC Director Jerry Hartzell*

Avila Valley Mutual Water Company (Avila Valley MWC) serves a small cluster of homes in the Avila Valley area. The service area is fully built out.

Existing and Build-out Population: 65 (28 connections)

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 32 AFY (28,000 gpd)
- Build-out ADD: 32 AFY (28,000 gpd)

Water Supply. Avila Valley MWC receives its water supply from surface sources. The Avila Valley MWC contracts with the District for a 20 AFY allocation of State Water and 60 AFY of Drought Buffer which is wheeled through Zone 3 facilities. An additional 12 AFY allocation of Lopez Lake water procured from CSA 12 brings the total supply to 32 AFY. Two wells are also owned by the Avila Valley MWC for emergency backup purposes, but because quality is less than desirable, they are not used on a regular basis.

Avila Valley MWC has been noted as being interested in an additional 20 to 40 AFY of State Water should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

Water Quality: The quality of Avila Valley MWC water is similar to others using water from Lopez Lake. Raw well water is of poor quality and would only be treated and used as an emergency backup in case of disruption of the surface supply.

San Miguelito Mutual Water Company

Source: *2008 San Miguelito MWC Consumer Confidence Report and personal communication with Director Rick Koon*

San Miguelito Mutual Water Company (San Miguelito MWC) serves the San Luis Bay Estates area in the community of Avila Beach.

2008 Population Served: 1385 (620 connections)
Build-out Population: Estimated at 2100 (930 connections)

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 263 AFY (0.24 MGD)
- Build-out ADD: 393 AFY (0.35 MGD.) (based on 70/30 supply goal discussed below)

Water Supply. San Miguelito MWC receives its water supply from both surface and groundwater sources. The San Miguelito MWC contracts with the District for a 275 AFY allocation of State Water and 275 AFY of Drought Buffer which is wheeled through Zone 3 facilities. Additional water is pumped from three local wells which draw water from the aquifer fed by San Luis Obispo Creek.

The San Miguelito MWC's goal is to provide consumers with a 70/30 blend of surface/well water, but problems with the well system have limited its contribution to 10 to 20% in recent years.

With a fully functioning water supply system, the San Miguelito MWC has adequate supply to meet both existing and future water requirements. San Miguelito MWC has been noted as being interested in an additional 10 AFY of State Water should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

Water Quality. Quality of San Miguelito MWC water is similar to others using water from Lopez Lake. Raw well water is treated for iron and manganese removal and mixed with Lopez Lake water prior to delivery.

County Service Area 12 (including Port San Luis)

Source: *2005 Zone 3 UWMP*

County Service Area 12 (CSA 12) provides 61 AFY of Lopez Reservoir water to customers in the rural area east of Avila Beach and transfers up to 100 AFY of Lopez Reservoir water through its piping system to Port San Luis. The Port currently uses only 35% (35 AFY) of that allocation. In addition, CSA 12 transfers water through its piping system to Avila Beach CSD, Avila Valley MWC, and San Miguelito MWC (discussed separately).

Water supplies for CSA 12 also include 7 AFY from the State Water Project allocated to the San Luis Coastal Unified School District. Entities within CSA 12 have been noted as being interested in an additional 30 AFY of State Water should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

South Coast WPA 7

Golden State Water Company (Edna Valley)

Source: *GSWC files*

Golden State Water Company (GSWC) supplies its Edna Valley customers with domestic water service.

Land Use and Service Population. Golden State's Edna Road service area is an unincorporated area located in San Luis Obispo County, California along Highway 227 to the south of the City of San Luis Obispo, not far from the County Airport. The Edna Road area is comprised of residential and agriculture areas and dominated by the San Luis Obispo Country Club, which includes an 18-hole golf course.

Water Demand. Existing demand has been calculated by multiplying the 9 year average demand per connection by the number of active service connections. This results in an existing demand of 410 AFY for year 2007.

- 2007 Average Day Demand (ADD): 410 AFY (0.366 MGD)
- 2007 and Build-out Per Connection Demand: 0.683 AFY/connection
- Build-out ADD: (Year 2030): 482 AFY based on 712 connections and an annual growth rate of 0.71%

Water Supply. The GSWC Edna Road service area draws water from three wells, each with 500 gpm pumping capacity. The wells tap the Edna Valley groundwater basin.

Water Quality. The Edna Road System groundwater sources currently comply with all primary and secondary MCLs; however, treatment is required. Lewis Lane Wells No.3 and No.4 are treated for high iron and manganese by oxidation and subsequent filtration, as well as

partial treatment for intermittently high selenium by ion exchange (IX). Nitrate and arsenic are also present in all three wells, but average less than one half the MCL, and are removed along with selenium in the IX unit.

Northern Cities Management Area (NCMA)

City of Pismo Beach

Source: *2004 City of Pismo Beach Water Master Plan, 2005 City of Pismo Beach UWMP, 2008 and 2009 NCMA Annual Reports*

The City of Pismo Beach supplies its customers with domestic water service and fire protection.

Land Use and Service Population. The City of Pismo Beach is located in the southern portion of San Luis Obispo County, extending along the Pacific Ocean shoreline some seven miles. The dominant economic activity in Pismo Beach is tourism, and as a result the population of the City can more than double during summer holidays.

2004 Conditions: Population: 8,551

Build-out Conditions: Population: 11,122

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 2,208 AFY (1.97 MGD)
- 2009 ADD: 2,039 AFY (1.82 MGD)
- 2004 residential demand: 161 gpcd
- Build-out ADD: 2,977 AFY (2.66 MGD.) at 0.68 AFY/acre (includes land within the SOI)

Water Supply- Existing. The City receives water from three water sources: local groundwater, Lopez Reservoir and the State Water Project. These sources are described below:

- 700 AFY local groundwater is extracted from the Arroyo Grande Plain, which is part of the Santa Maria Groundwater Basin. Extraction rights are shared by agreement with the City of Arroyo Grande, the City of Grover Beach, and the Oceano Community Services District. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be decreased at a future date.
- 896 AFY from the Zone 3 Lopez Project is provided as a contractual supply to the City of Pismo Beach. Environmental protection issues may call for increased releases to Lopez Creek, thereby reducing the allotment available for Pismo Beach and other cities.
- 1,240 AFY comes from the SWP via contract with the District and delivery through Zone 3 facilities. 140 AFY of this contracted amount has been allocated for Pismo Ranch. The City also has a 1,240 AFY Drought Buffer allocation.

Water Supply – Future. Future water supply possibilities include the use of the Pismo Ranch allocation, tertiary treatment/reuse of wastewater, desalination, and extraction and treatment of groundwater from local basins. The City, in coordination with the NCMA, is also investigating the feasibility of increasing the safe yield of Lopez Reservoir. At this point, the use of the Pismo Ranch allocation has been deemed to be a cost-effective alternative. The City is in the process

of initiating a supplemental recycled water study as a joint project with the City of Arroyo Grande. The City has been noted as being interested in an additional 500 AFY of State Water and 1500 AFY of Drought Buffer should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09).

Water Quality. For the City of Pismo Beach, the most significant water quality issue is the formation of disinfection-by-products (DBP) in the treatment process, specifically trihalomethanes (THMs). THMs are a group of compounds formed during disinfection by the reaction of chlorine with naturally occurring organics. While the City has consistently met the current 80 micrograms-per-liter limits, there have been occasional instances in which the standard has been exceeded due to the high organic content of Lopez Reservoir water during certain times of the year. The new regulations require increased chlorine contact times, which will cause the THM levels to exceed the regulations.

Also of concern are nitrate levels in storage tanks. Due to the use of ammonia and chlorine to form chloramines, it is possible for nitrification to occur in the tanks where there is not adequate turnover. The City staff continually monitors the distribution system and storage detention times to assure adequate turnover. This ensures good quality water

Groundwater is typically calcium bicarbonate-sulfate in character, based on data from 1992-2000, with a median TDS value of 765 mg/l. Nitrates are low for the two wells used by the City. Well No.5 exceeded Primary Drinking Water Standards for uranium in the most recent CCR, but through appropriate mixing with water from other sources, the City has been able to deliver water that meets drinking water standards over the past decade.

City of Arroyo Grande

Source: *2005 City of Arroyo Grande UWMP and 2008 and 2009 NCMA Annual Report*

The City of Arroyo Grande supplies its customers with domestic water service and fire protection.

Land Use and Service Population. The City of Arroyo Grande is located in the southern portion of San Luis Obispo County along the banks of the Arroyo Grande Creek. Land use is primarily residential and agriculture with a small commercial sector. There are no agricultural or industrial water service connections.

2005 Conditions: Service Population: 16,637

Build-out Conditions (2025): Population: 20,224

Water Demand. Water demand is summarized as follows:

- 2005 Average Day Demand (ADD): 3,415 AFY (3.05 MGD)
- 2008 ADD: 3,531 AFY (3.15 MGD)
- 2009 ADD: 3,315 AFY (2.96 MGD)
- 2005 gross demand: 183 gpcd
- Build-out ADD: 4,150 AFY (3.71 MGD.)

Water Supply - Existing. The City has agreements in place to draw up to 3,794 AFY from four water sources: two groundwater basins, Lopez Reservoir and through Oceano CSD. These sources are described below:

- 1,314 AFY is the City's share of groundwater extracted from the Arroyo Grande Plain, which is part of the Santa Maria Groundwater Basin. Extraction rights are shared by agreement with the City of Pismo Beach, the City of Grover Beach, and the Oceano Community Services District. This includes a 112 AFY allocation from an Agricultural Land Conversion Credit. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be decreased at a future date.
- 90 AFY groundwater is extracted from the Pismo Formation which is outside of the NCMA and not subject to management agreements.
- 2,290 AFY from the Zone 3 Lopez Project is provided as a contractual supply to the City of Arroyo Grande. Environmental protection issues may call for increased releases to Lopez Creek, thereby reducing the allotment available for Arroyo Grande and other cities.
- 100 AFY from Oceano Community Services District (Oceano CSD). The City of Arroyo Grande and Oceano CSD have entered into an interim water supply agreement, for delivery of up to 100 AFY of Oceano CSD water to the City. The City is currently using between 90% and 95% of their current supply allocation, and therefore is in need of temporary provisions to meet water supply needs. Oceano CSD will deliver up to 100 AFY of groundwater and/or State Water, at Oceano CSD's discretion. This temporary agreement ends in 2014.

Water Supply – Future. Future water supply possibilities include desalination, recycled water and State Water. Arroyo Grande has been noted as being interested in 200 to 400 AFY of State Water should it become available (Additional/New Allocation Requests – Planning Purposes Only, 10/22/09). Extension of the Nacimiento pipeline project was considered; however, the project was not deemed financially viable.

Water Quality. Lopez Lake water has seasonal quality fluctuations that must be addressed by adjusting treatment methods.

Groundwater quality varies by depth and source, with some of the shallower wells drawing water with high nitrate levels. Water extracted from the Pismo Formation receives iron/manganese treatment prior to delivery. Through appropriate mixing the City has been able to deliver water that meets drinking water standards.

City of Grover Beach

Source: *2005 City of Grover Beach UWMP, 2008 and 2009 NCMA Annual Reports, Draft 2010 Water Master Plan*

The City of Grover Beach supplies its customers with domestic water service and fire protection.

Land Use and Service Population. The City of Grover Beach has a Mediterranean coastal climate with mild and dry summers, cool winters and an annual average of 16 inches of precipitation. During the summer months, fog helps reduce irrigation requirements by decreasing evapotranspiration. Grover Beach is primarily a residential community, with a small commercial/industrial sector. Approximately 80% of the water consumers are residents. No

agricultural consumers are served by the City water system, though landscape irrigation consumes approximately 90 AFY.

2009 Population: 13,254.

Build-out Population: Future build-out population, based on zoning and land use designations within the City boundary, is estimated at 15,000. It is expected to reach this level by 2030.

Water Demand. Water demand is summarized as follows:

- 2005 Average Day Demand (ADD): 2036 AFY (1.88 MGD)
- 2008 ADD: 2030 AFY
- 2009 ADD: 1940 AFY
- 2009 Per Capita Demand: 131 gpcd
- 17-year Average Per Capita Demand: 138 gpcd
- Future ADD at Build-out: 1,892 - 2,500 AFY (1.69 - 2.23 MGD) (20% level of conservation for the lower end of the range)

Water Supply. The City of Grover Beach receives water from Lopez Lake and also uses groundwater from four municipal wells and one irrigation pump. The description of these sources follows:

- 800 AFY Lopez Lake:
  The Zone 3 Lopez Project provides a contractual supply of up to 800 AFY to the City of Grover Beach, which is currently part of the safe yield of Lopez Lake. Environmental protection issues may call for increased releases to Lopez Creek, thereby reducing the allotment available for Grover Beach and other cities.
- 1,407 AFY Groundwater:
  Three shallow wells draw water from the Paso Robles formation and a fourth well draws water from the deeper Careaga formation. Extraction rights are shared by agreement with the City of Arroyo Grande, the City of Pismo Beach, and the Oceano Community Services District. The City of Grover Beach is currently entitled to 1,407 AFY from this source per the agreement. This includes a 207 AFY allocation from an Agricultural Land Conversion Credit. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be decreased for both of these allocations at a future date.
- 225 AFY Non-potable Groundwater
  The 225 AFY pumped from irrigation wells is used on the State Parks Department golf course and a large park within the City.

The City had a temporary transfer agreement with the Oceano CSD that allowed the City to purchase up to 100 AFY, but this agreement has expired.

Water Supply – Future: Potential future water supply sources under consideration include desalination, State Water and recycled wastewater. Extension of the Nacimiento pipeline project was considered; however, the project was not deemed financially viable.

Water Quality: Lopez Lake water has seasonal quality fluctuations that must be addressed by adjusting treatment methods. The ground water from the Paso Robles formation meets all state and federal standards except for nitrate concentration. The City of Grover Beach

completed construction of an ion exchange water treatment plant designed to remove nitrates from the shallow well water in 1989. This allows the City to use its shallow well water to produce water straight into the water mains after it passes through the treatment plant and a chlorination station.

Oceano Community Services District

Source: *2009 Oceano Community Services District Draft Water Master Plan Update and 2008 and 2009 NCMA Annual Reports*

Formed in November 1980, the Oceano Community Services District (Oceano CSD) took over several responsibilities of the County and now provides water, street lighting, sewage collection, garbage collection, fire protection and basic life support services, and parks and recreation services. The County still maintains responsibility for roads, drainage, land use planning, and general services. The service area has not changed since 1980 and encompasses approximately 1,150 acres with elevations ranging from sea level to 110 ft.

Land Use and Service Area Population. The Oceano CSD service area is located immediately to the south of Grover Beach and Arroyo Grande with the Pacific Ocean to the West in the County of San Luis Obispo. Oceano CSD includes over 450 acres of land zoned residential, 59 acres commercial, 40 acres industrial, 94 acres agricultural, and 99 acres zoned public facility.

Existing Population: Existing population (as of July 2009) within the Oceano CSD service area was based on evaluation of water and sewer connections, prior master plans (Garing & Taylor, 2004), and County data. Current population is estimated at 8,137.

Build-out Population: Future build-out population, based on zoning and land use designations within the CSD boundary, is estimated at 12,855.

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 934 AFY (0.83 MGD)
- 2009 ADD: 885 AFY (0.79 MGD)
- 2008 Per Capita Demand: 97 gpcd
- Future ADD at Build-out: 1,419 AFY (1.27 MGD)
- Maximum Month Demand: 1.7 times ADD

Water Supply. The Oceano CSD utilizes water from three sources, including groundwater, the State Water Project and Lopez Lake water. A breakdown of the Oceano CSD's allocations is as follows:

- 900 AFY groundwater allocation, limited to this amount by agreement with the City of Arroyo Grande, the City of Pismo Beach, and the City of Grover Beach. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be decreased at a future date.
- 303 AFY allocation from Lopez Lake, subject to possible reduction if habitat requirements dictate.
- 750 AFY from the State Water Project, but subject to limitations (see SWP

discussion).
- 1,953 AFY Total

Based on an evaluation of water supply reliability, based on 66% availability of State Water due to drought and/or environmental restrictions, the reliable State water supply is estimated at 495 AFY, for a total water supply for Oceano of 1,698 AFY. Participation in the District's drought buffer program for State Water would improve water supply reliability for the Oceano CSD.

The City of Arroyo Grande and Oceano CSD have entered into an interim water supply agreement, for delivery of up to 100 AFY of Oceano CSD water to the City. As indicated in the discussion on Arroyo Grande, the City is currently using between 90% and 95% of their current supply allocation, and therefore is in need of temporary provisions to meet water supply needs. Oceano CSD will deliver up to 100 AFY of groundwater and/or State Water, at Oceano CSD's discretion. This temporary agreement ends in 2014.

Water Quality. In reviewing the CCR for 2008, the Oceano CSD continues to meet all Federal and State Drinking Water Standards. Selenium levels continue to be high, from two of their existing wells (Wells 4 and 5); however, with blending of the various other water sources, the drinking water standard continues to be met.

The selenium concentrations in Wells 4 and 5 have appeared to increase since the 2004 G&T WMP Report. However, interestingly, the recent results also show a fairly clear trend of diminishing selenium concentrations over the past year. It is uncertain what may be the reason for the decline this past year; possibly the current drought conditions may have some effect on the selenium concentrations in the groundwater. Regardless, the concentrations of selenium remain above the MCL of 50 ug/L, and must continue to be monitored and blended with other water supplies to achieve the MCL requirements.

Nipomo Mesa Management Area (NMMA)

Golden State Water Company (Nipomo Area)

Source: *GSWC files, 2005 Santa Maria Groundwater Litigation Stipulation and 2008 and 2009 NMMA Annual Report*

The Golden State Water Company (GSWC) provides water service to approximately 1,475 households on the south side of Nipomo.

Land Use and Service Population. GSWC serves a rural population that is undergoing development and is expected to grow at a projected rate of 1.42 percent over the next two decades until build out (2030).

Water Demand. Water demand has been calculated based on historical use data. Existing and future water service areas and demands are summarized as follows:

Current Conditions
- 2007 Water service connections: 1,495
- 2007 9-year Average Water Consumption: 0.94 AFY/connection
- 2007 Average Day Demand (ADD): 1,405 AFY (1.25 MGD)

- 2008 ADD: 1,380 AFY (per 2008 NMMA Annual Report)
- 2009 ADD: 1,290 AFY (per 2008 NMMA Annual Report)

Build-out Conditions (2030)

- Water service connections: 2,068
- Average Water Consumption: 0.94 AFY/connection
- Average Day Demand (ADD): 1,944 AFY (1.74 MGD)

Water Supply. GSWC presently uses groundwater for 100% of supply requirements. Groundwater is pumped from the larger Santa Maria Valley Groundwater Basin (SMVGB) using five active wells. Total capacity of this system exceeds current 1,405 AFY requirements; however, litigation involving use of the SMGWB, which began in 1997, has resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. In addition, the stipulated judgment has required GSWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY. Once the supplemental water system is in place, GSWC will be required to purchase 8.33% (208.25 AFY) of that supply.

Water Quality. Water quality is formally monitored as part of the requirements of the NMMA stipulation. Wells are monitored regularly and reported publicly. The 2009 NMMA report has concluded that there is no evidence of seawater intrusion into the the NMMA portion of the groundwater basin. Localized areas of the NMMA have reported nitrate concentrations as high as 90 percent of the Maximum Contaminant Level and rising nitrate concentrations in groundwater. Three of the GSWC wells are currently being treated for iron and manganese.

Nipomo Community Services District

Source: *2007 Nipomo CSD Water and Sewer Master Plan Update, 2008 and 2009 NMMA Annual Reports, and 2009 Nipomo CSD Waterline Intertie Project Narrative Report, 2010 Public Review Draft Urban Water Management Plan (UWMP)*

The town of Nipomo is an unincorporated area located in southern San Luis Obispo County, the first community on Highway 101 entering the county from the south. The Nipomo Community Services District (Nipomo CSD) provides water service and wastewater services to approximately 12,000 residents. The Nipomo CSD is part of the Nipomo Mesa Management Area (NMMA) for management of groundwater resources.

Land Use and Service Population. The Nipomo CSD serves a rural area that is undergoing development. Development is expected to continue to expand in the future, more than doubling water demands at build-out.

Water Demand. Water demand has been calculated based on land-use categories and water duty factors. Existing and future water service areas and demands are summarized as follows:

Current Conditions

- Water Service Connections (2010): 4,128
- Baseline Gross Water Use: 244.8 gallons per capita per day (gpcd) (10 year average 1997-2006)
- 2009 Water Use: 222.7 gpcd

- 2006 Average Day Demand (ADD): 3,000 AFY (2.67 MGD)
- 2008 ADD: 2,700 AFY (per 2008 NMMA Annual Report)
- 2009 ADD: 2,560 AFY (per 2009 NMMA Annual Report)
- 2010 ADD: 2,698 AFY (per 2010 Draft UWMP)

Build-out Conditions (2030)

- Water Service Connections: 5,323
- Future Water Use: 195.8 gpcd
- Average Day Demand (ADD): 2,984 AFY (2.66 MGD) based on conservation goals

Water Supply. Nipomo CSD presently uses groundwater for 100% of supply requirements. Groundwater is pumped from the larger Santa Maria Valley Groundwater Basin (SMVGB) using eight active and one standby wells. Total capacity of this system exceeds current 3000 AFY requirements; however, litigation involving use of the SMVGB, which began in 1997, has resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. The stipulation has also required the Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY.

Water Supply – Future: The Nipomo CSD has investigated multiple sources of supplemental water and, as a result, signed an agreement with the City of Santa Maria (City) to pursue a Waterline Intertie Project. The January 5, 2010 Wholesale Water Supply Agreement established the basis for purchase and delivery of water from the City to the Nipomo CSD. The project EIR has been certified. The Nipomo Waterline Intertie Project is going through its final design and financing stages. If constructed, it will be capable of delivering up to 3,000 AFY and could be completed in two and a half years. Three other water purveyors, Woodlands MWC, Golden State WC, and Rural Water Company will share in the costs project and will together receive one-third of the mandated minimum water delivery (833 of 2,500 AFY). The additional 500 AFY capacity has been reserved for use by the Nipomo CSD. Additional water via the City (if possible), desalination and recycled water are also being considered as a long term alternative source.

Water Quality. Water quality is formally monitored as part of the requirements of the NMMA stipulation. Wells are monitored regularly and reported publicly. The 2009 NMMA report has concluded that there is no evidence of seawater intrusion into the NMMA portion of the groundwater basin. Localized areas of the NMMA have reported nitrate concentrations as high as 90 percent of the Maximum Contaminant Level and rising nitrate concentrations in groundwater. There is a concern that nitrate levels are increasing in wells near the Southland WWTF. Though studies have not tied this increase to current effluent disposal practices, the WWTF is investigating alternative effluent disposal methods that will enhance groundwater recharge without increasing nitrate levels.

Rural Water Company

Source: *2008 and 2009 NMMA Annual Reports and 2005 Santa Maria Groundwater Litigation Stipulation*

Rural Water Company (RWC) provides water to consumers on the north side of the Nipomo Mesa, including Cypress Ridge, a planned development consisting of approximately 380 homes and a gold course.

Land Use and Service Population. RWC serves a residential community that includes both densely spaced homes and numerous large lot rural residences. It also provides non-potable water to the Cypress Ridge Golf Course to supplement irrigation from recycled wastewater. The golf course is irrigated partially by effluent from the Cypress Ridge Wastewater Treatment Facility (Cypress Ridge WWTF), which in turn uses some of the golf course water features as finishing ponds in the waste treatment process.

Water Demand. Water demand has been calculated based on historical use data. Existing and future water service areas and demands are summarized as follows:

Current Conditions

- Population served: 1850
- 2008 ADD: 900 AFY (per 2008 NMMA Annual Report)
- 2009 ADD: 880 AFY (per 2009 NMMA Annual Report)

Build-out Conditions (2030)

- Water service connections: xxx
- Average Water Consumption: xx AFY/connection
- Average Day Demand (ADD): xxx

Water Supply. RWC presently uses groundwater for 100% of potable water supply requirements. Groundwater is pumped from the larger Santa Maria Valley Groundwater Basin (SMVGB) using several active wells. However, litigation involving use of the SMGVB, which began in 1997, has resulted in stipulations and judgments in 2005 and 2008. As party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. The stipulation has required RWC to join with Nipomo CSD to develop alternative sources to import a minimum of 2,500 AFY. Once the supplemental water system is in place, RWC will be required to purchase 8.33% (208.25 AFY) of that supply.

The Cypress Ridge WWTF currently produces approximately 50 AFY of irrigation quality effluent which is used on the golf course.

Water Quality. Water quality is formally monitored as part of the requirements of the NMMA stipulation. Wells are monitored regularly and reported publicly. The 2009 NMMA report has concluded that there is no evidence of seawater intrusion into the the NMMA portion of the groundwater basin. Localized areas of the NMMA have reported nitrate concentrations as high as 90 percent of the Maximum Contaminant Level and rising nitrate concentrations in groundwater.

Woodlands Mutual Water Company

Source: *2004 Water Master Plan, 2005 Santa Maria Groundwater Litigation Stipulation and 2008 and 2009 NMMA Annual Reports*

The Woodlands is a relatively new housing and commercial development located on the Nipomo Mesa in southern San Luis Obispo County. It is a planned community to be built out in four phases over time, with economic conditions influencing the date of completion. The Woodlands Mutual Water Company (Woodlands MWC) was organized to provide water to customers within the Woodlands Development. The Woodlands MWC currently supplies its

customers with domestic water service, fire protection, wastewater collection, and wastewater reclamation.

Land Use and Service Population. The Woodlands has a tentative map allowing for 1,320 residential units, plus additional commercial facilities. Currently, there are 685 residential lots that have been recorded in final maps. Commercial facilities for the golf course are also constructed at this time. Other facilities that may be constructed in the future include commercial facilities at the business park, a hotel, and a possible school. The planned development also currently has an 18-hole golf course and a smaller 12-hole executive course. The on-site wastewater treatment plant provides the golf courses with recycled water for irrigation; however, it is also supplemented with groundwater. Another 18-hole golf course is also planned for the future, which will be irrigated with groundwater.

Water Demand. Existing and future water service areas and demands are summarized as follows:

Current Conditions

- 2009 ADD: 810 AFY (per 2009 NMMA Annual Report)

Build-out Conditions (2030)

- Average Day Demand (ADD): 1,600 AFY

The Woodlands Development is progressing with its phased development of homes and other planned facilities. Of the 1,320 future dwelling units, 685 parcels have been recorded and are ready for construction. As of September 2009, there are 323 active residential or commercial water service connections. In 2008, Woodlands MWC delivered 402 AFY to customers for commercial, residential, and common area irrigation use. This does not include raw water that was pumped for golf course purposes.

Based on the 2004 Water Master Plan, it is estimated that at build-out, Woodlands MWC will use approximately 872 AFY for all uses except golf course irrigation. When all golf courses are complete, they will require an additional 687.5 AFY. The table below provides a summary of the estimated water usage (excluding golf course irrigation) by land use.

Table 3.9. Summary of Estimated Water usage for The Woodlands

User	Units	Type of Unit	Demand, gpm	Total Usage, gpm (afy)
Residential Single Family	1,220	D.U.	0.3	366.00 (590.4)
Residential Multi-Family	100	D.U.	0.137	13.70 (22.1)
Village: Mixed Use	10.46	acres	1.3	13.60 (21.9)
Resort: Hotel	500	rooms	0.093	46.50 (75.0)
Resort: Mixed Use	23.67	acres	1.3	30.77 (49.6)
Business Park	20.29	acres	1	20.29 (32.7)
Golf Clubhouse	2	facilities	3.97	7.94 (12.8)
School	600	students	0.019	11.40 (18.4)
Maintenance/WWTP	1	lump	4.53	4.53 (7.3)
Parks	16.64	acre	1.55	25.79 (41.6)
Total				**540.48 (871.8)**

Water Supply. Currently, the Woodlands MWC relies on groundwater as the sole source of water. The Woodlands MWC owns and operates four wells, three of which produce potable water and the fourth serves irrigation needs. Groundwater is pumped from the Nipomo Mesa Management Area (NMMA) of the Santa Maria Groundwater Basin, an aquifer that has been the subject of ongoing litigation since 1997. As a party to the Santa Maria Groundwater Basin litigation, extraction rights may be affected at a future date. A 2005 Settlement Stipulation requires that NMMA water purveyors import a minimum of 2,500 acre-feet of supplemental water to the NMMA each year.

Woodlands MWC is cooperating with other water purveyors to meet the requirements of the Stipulation. The Nipomo Community Services District (Nipomo CSD) is serving as lead agency to develop the Waterline Intertie Project (WIP) that will connect the City of Santa Maria water system to the Nipomo CSD system, providing 2,500 AFY to the NMMA and an additional 500 AFY to Nipomo CSD. Woodlands MWC has agreed to purchase a portion of the NMMA supplemental water (determined according to the percentage of completion of the project and rising to a total of 417 AFY at such time as its service area is fully developed). Woodlands MWC has also agreed to pay a portion of the operating costs, capital costs and replacement costs of the project based on the amount of water purchased by Woodlands MWC relative to the total amount purchased from the City of Santa Maria. Woodlands MWC also has the right to exercise an option for an additional 300 AFY from the WIP at a future date.

24 AFY of recycled water was used in 2008 to partially irrigate the golf course. As more residential units are completed, increased quantities of wastewater will be available for recycling. The build-out flow of the WWTP is 774 AFY. Well water will continue to be required during periods in which the recycled water available is less than the golf course demand.

Water Quality. Water quality is formally monitored as part of the Woodlands MWC's participation in the NMMA Technical Group, and also as a requirement of the Department of Public Health. Wells are monitored regularly and reported publicly. . The 2009 NMMA report has concluded that there is no evidence of seawater intrusion into the the NMMA portion of the groundwater basin. Localized areas of the NMMA have reported nitrate concentrations as high as 90 percent of the Maximum Contaminant Level and rising nitrate concentrations in groundwater. The most recent Consumer Confidence Report indicated that Woodlands MWC supplied water that met both primary and secondary drinking water standards. One of the wells exceeds the standards for iron, but mixing with water from other wells produces water that meets the iron standard.

Conoco Phillips

Source: *2008 and 2009 NMMA Annual Reports and 2005 Santa Maria Groundwater Litigation Stipulation*

Conoco Phillips uses water for industrial operations at its refinery on the Nipomo Mesa.

Water Demand. Water demand has decreased in recent years due to infrastructure changes resulting in more water-efficient operations. Planned expansion will increase water demand, but demand will remain less than historical peak pumping rates.

Current Conditions

- 2008 Average Day Demand (ADD): 1,100 AFY (0.98 MGD)
- 2009 ADD: 1,200 AFY (1.07 MGD)

Build-out Conditions

- Average Day Demand (ADD): 1,400 AFY (1.25 MGD)

Water Supply. Conoco Phillips uses groundwater for 100% of supply requirements. Though it is a party to the Santa Maria Groundwater stipulation, it is not required to participate in the development of supplemental water. It has rights to reasonable and beneficial use of groundwater without limitation, except in the event of a Severe Water Shortage, as defined in the stipulation.

Water Quality. Water quality is formally monitored as part of the requirements of the NMMA stipulation. Wells are monitored regularly and reported publicly. The 2009 NMMA report has concluded that there is no evidence of seawater intrusion into the the NMMA portion of the groundwater basin. Localized areas of the NMMA have reported nitrate concentrations as high as 90 percent of the Maximum Contaminant Level and rising nitrate concentrations in groundwater. One of the Conoco Phillips wells reported a high (1000 mg/l) TDS value. The well is used for industrial processing.

Huasna Valley WPA 8

The Huasna Valley WPA has no large water purveyors. Water usage in this WPA is analyzed as overlying use.

Cuyama Valley WPA 9:

Cuyama Community Services District

Source: *2005 Grand Jury Report and SB County 2008 Water Production Survey*

The Cuyama Community Services District (Cuyama CSD) provides water to consumers in and around the community of New Cuyama in Santa Barbara County. Because the Cuyama CSD draws from an aquifer that extends into San Luis Obispo County, a brief discussion of this water purveyor is included.

Land Use and Service Population: The community of New Cuyama was established as a company town by Atlantic-Richfield to provide housing and services for its workers. The water supply system is now owned and operated by the Cuyama CSD, serving approximately 820 residents. There are 217 single family, 15 commercial, and 22 landscape connections.

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 172 AFY (0.15 MGD)
- 2008 Per Capita Demand: 112 gpcd residential, 187.4 gpcd gross
- Future ADD at Build-out: unknown

Water Supply. Cuyama CSD draws all of its supply from wells which tap the Cuyama Valley groundwater basin. The basin as a whole is in a critical stage of overdraft. Efforts to sustainably manage the basin are hampered because the basin underlies four counties.

Water Quality: Because of constant cycling and evaporation of irrigation water in the basin, water quality has been deteriorating. Nitrate concentrations in some shallow wells in the area have exceeded 400 mg/l. Water from one of the principle wells contains arsenic at relatively high levels, often approaching the current arsenic MCL of 50 ppb. A treatment system has been installed to reduce levels of arsenic prior to distribution.

INLAND SUBREGION

This section describes water supply, water demand, and water quality for Water Planning Areas 10 to 16:

- Carrizo Plain WPA 10
- Rafael/Big Spring WPA 11
- Santa Margarita WPA 12: Santa Margarita Ranch and CSA 23 (Santa Margarita)
- Atascadero/Templeton WPA 13: Garden Farms CWD, Templeton CSD and Atascadero Mutual Water Company
- Salinas/Estrella WPA 14: San Miguel CSD, Camp Roberts, City of Paso Robles, and CSA 16 (Shandon)
- Cholame WPA 15
- Nacimiento WPA 16: Oak Shores (Nacimiento Water Company) and Heritage Ranch CSD

Carrizo Plain WPA 10

The Carrizo Plain WPA has no large water purveyors. Water usage in this WPA is analyzed as overlying use. Due to the age of previous water studies for this area, potential demands and groundwater characterization from water studies completed for two proposed solar power projects are included in this discussion. The modeling completed for these two projects analyzes a significant portion of the Carrizo groundwater basin.

Source: John Kessler, California Energy Commission (excerpts from Carrizo Energy Solar Farm); John Larson, URS Corporation (SunPower Project); Tim Cleath, Cleath-Harris Geologist, Inc. (SunPower Project); SunPower - California Valley Solar Ranch Environmental Impact Report (EIR), Topaz Solar Farm (First Solar) Draft Environmental Impact Report.

These two large solar farms are referred to as the Topaz Solar Farm, and the SunPower-California Valley Solar Ranch. These proposed projects are 550 and 250 megawatt solar power plants, respectively. Both projects propose to use photovoltaic technology, which will consume less water than steam-producing plants.

Water Demand. Water demand is summarized as follows:

Topaz Solar Farm (per DEIR):

- Project Construction Average Day Demand (ADD): 199 - 273 AFY for two years (0.18 – 0.24 MGD); 48 – 69 AFY for the third year (0.04 – 0.06 MGD)
- Ongoing Project Operation: 4.5 AFY (0.004 MGD)

Sun Power-California Valley Solar Ranch (per EIR):

- Project Construction Average Day Demand (ADD): 40.84 AFY for three years (0.04 MGD)
- Ongoing Project Operation: up to 9.3 AFY (0.008 MGD)

During operation of the facilities, (long-term) water demand would be required for washing solar panels if needed, potable water for employees, service water for general site uses including irrigation, and fire protection.

Water Supply.

DWR Safe Yield: 600 AFY (based on demand in 1954)
Kemnitzer Safe Yield: 59,000 AFY (based on 1967 inflow/outflow analysis)

Taking into consideration the methodologies used in previous studies, current and historical groundwater levels, and water quality, the solar project EIRs' water analyses conclude that a more reasonable safe yield to base planning decisions on ranges between 8,000 – 11,000 AFY.

Water Quality: Groundwater quality has a wide range of qualities, as noted in the groundwater resources discussion for the Carrizo Plain. Additionally, according to the Sun Power EIR, the results of groundwater quality testing conducted on samples for the proposed Sun Power solar project well indicate TDS content of 4,940 mg/L at the proposed project site. The EIR concludes that the groundwater quality, with treatment (reverse osmosis is proposed), is useable for the proposed project, particularly considering historic land uses of the area and understanding of aquifer characteristics. Similarly, according to the Topaz Farm EIR, the results

of groundwater quality testing conducted on samples for the proposed Topaz Farm solar project well indicate water from the lower aquifer is not suitable for drinking water without treatment and primarily exceed the drinking water standard for nitrate.

Rafael/Big Spring WPA 11

The Rafael/Big Spring WPA has no large water purveyors. Water usage in this WPA is analyzed as overlying use.

Santa Margarita WPA 12

Santa Margarita Ranch

Source: *Santa Margarita Ranch Agricultural Residential Cluster Subdivision Project and Future Development Program EIR*

The Santa Margarita Ranch (Ranch) encompasses approximately 14,000 acres and is located immediately east of U.S. Highway 101, and surrounds the community of Santa Margarita, between the cities of San Luis Obispo and Atascadero.

Land Use and Service Population. The land currently functions as ranch and vineyard with minimal residential water use. Approximately 96% of the water is used by vineyards and other farm operations. An Agricultural Residential Cluster Subdivision (ARCS) is proposed, including 3,778 acres near the middle of the Ranch, southeast of the community of Santa Margarita. A Future Development Program (FDP) is planned in various locations throughout the balance of the property. The proposed ARCS includes 111 large-lot residential units and agricultural reserves. The FDP covers a variety of development types, including 402 residences, a golf course, guest ranch, wineries, and other commercial and recreational facilities.

Water Demand. The existing Ranch water use is estimated at 1,621 AFY based on land use water factors. Planned expansion of orchards and vineyards will increase water use to 4,263 AFY. The EIR states that the ARCS would increase water demand by 161 AFY. Implementation of the FDP would add an additional 1,466 AFY of demand. Based on these values, the total build-out demand is 5,890 AFY.

Water Supply - Existing. Existing Santa Margarita Ranch water demands are supplied entirely by groundwater. The Ranch property is currently served by approximately 27 wells, located primarily along the east side of the Ranch, west of West Pozo Road. Individual well yields typically range between 200 and 400 gallons per minute (gpm) with some wells capable of rates of up to 1,000 gpm.

Environmental water requirements may limit the use of groundwater to meet the needs of expanded agricultural production and eventual residential development. Trout and Rinconada creeks, which are upper tributaries of the Salinas River, are important spawning habitat for steelhead, a federally declared endangered species. The National Marine Fisheries Service (NMFS) has previously received complaints that the creeks have allegedly been dewatered as a result of vineyard development on Ranch property.

Water Supply – Future: Supplemental water supply options for Santa Margarita Ranch are State Water and Nacimiento water.

Water Quality. TDS concentrations in wells in the area are relatively high. Nitrates have measured concentrations below the maximum contaminant level (MCL) of 45 mg/l. Total coliform, fecal coliform, and Escherichia coli data have been found to be suggestive, although not conclusive, of small impacts on both shallow and deep aquifer wells from local wastewater disposal systems.

County Service Area 23

Source: *2003 CSA 23 Water Master Plan, several County staff memos, County Public Works-compiled consumption data and Planning Department land use projections*

County Service Area 23 (CSA 23) consists of the community of Santa Margarita, an unincorporated community in north-central San Luis Obispo County. Santa Margarita has a population of approximately 1,400 and covers an area of approximately 265 acres. CSA 23 supplies the community with water via groundwater wells located in the center and south-eastern corner of the community. The community is completely reliant on groundwater for its supply. Fire service is included in the system.

Land Use and Service Population. In 2009, the CSA served a total of 525 connections, predominantly residential. Future build-out is estimated to be 619 connections.

Water Demand. Water demand is summarized as follows:

- Average Day Demand (ADD) (2005 – 2009): 164 AFY (0.146 MGD)
- Water Duty Factor (2005 – 2009): 265 gpd/residential meter, 305 gpd/commercial meter
- Build-out ADD (2035): 192 AFY (0.171 MGD.)

Water Supply - Existing. CSA 23 receives its water supply from two wells; Well No.3 and No.4. Well No.3 is a deep, fractured-rock well and Well No.4 is a relatively shallow well that pumps from the alluvial deposits of Santa Margarita Creek. Two other wells, No.1 and No.2, are near No.4, but are not built to current health standards, and can only be used in an emergency with a boil water order.

During periods of low seasonal rainfall, water level in the shallow well typically drops, triggering various voluntary conservation methods. Although the community is better than 85% built out according to the current general plan, there is concern that existing groundwater supplies may not be adequate to supply additional residents and that they are inadequate during periods of less then normal rainfall. There is also the concern that the reliance on essentially a single supply source (groundwater) may be placing the community in a tenuous public health and safety position.

Water Supply – Future: The 2003 Master Plan recommended securing an additional 100 AFY of reliable supply. Based on community input, concerns over cost and need, CSA 23 is currently investigating several options to secure an additional source of water to be used only during a drought or other emergency. These include State Water, Lake Nacimiento water or

additional groundwater wells. Any one of these sources could potentially supply water demand at build-out given the community's support.

Water Quality. CSA 23 has been able to deliver water that meets State Drinking Water Standards, but consumer feedback indicates that the well water that serves the community is hard, stains fixtures and creates challenges in the laundry room. However, a consumer survey in 2004 indicated that less than 30% of the respondents would support procurement of additional water sources to improve the aesthetic quality of the delivered supply.

Atascadero/Templeton WPA 13

Garden Farms Community Water District

Source: *Garden Farms CWD Well logs and 2007 CCR*

The Garden Farms Community Water District (Garden Farms CWD) provides water to consumers in and around the unincorporated community of Garden Farms, located along the old El Camino Real between Santa Margarita and Atascadero. Garden Farms is a small residential community of 240 residents with 113 water service connections. Besides two small commercial establishments, all connections are residential.

Water Demand: Demand has fluctuated between 48 and 93 AFY over the past four years. The service area is fully built out.

Water Supply: Garden Farms CWD draws all of its supply from three wells (though the third well is rarely used) which tap the Atascadero Groundwater Subbasin. The basin is not adjudicated. Water levels have dropped several feet in the past year, likely due to the ongoing drought in the region.

Water Quality: Groundwater quality is typical for the subbasin, with no contaminants exceeding the primary drinking water standards. High levels of manganese (70 ppb reported in 2007) have been detected, but do not currently exceed the secondary drinking water standard of 50 ppb.

Templeton Community Services District

Source: *2005 Templeton CSD Water System Master Plan Update, 2010 Paso Robles Groundwater Basin Water Balance Review and Update*

The Templeton Community Services District (Templeton CSD) supplies its customers with domestic water service, wastewater service, and fire protection, among other services.

Land Use and Service Area Population. Templeton is an unincorporated community located in San Luis Obispo County, California along Highway 101 between the City of Paso Robles and City of Atascadero. Templeton consists of a mix of residential, commercial, agriculture, and recreational areas. The Templeton area has a number of homes on larger lots, and thus exhibits a relatively large per capita water demand as a result. Population projections described below are quoted from the November 2005 Water System Master Plan Update Report. It should be noted that the population projections are based on only those areas served by, and within, the Templeton CSD service area boundary. Thus, there will likely be

discrepancies between these projections and those provided by the County or 2000 Census data.

Existing Population: Existing population (as of November 2005) within the Urban Reserve Line (URL) was based on the residential water connections plus the difference in the URL and the Templeton CSD boundary and the additional residences within the Templeton CSD that use personal on-site wells, resulting in a 2005 service area population of 6,417 persons.

Build-out Population: Based on the 2005 estimated population of 6,417 persons determined by the Templeton CSD's water service connections, plus 2,180 persons from the commercial mixed-use component, and an additional 900 persons from the residential component, the Templeton CSD's estimated build-out population (within its existing service area boundary) is 9,497 persons.

Water Demand. Water demand is summarized as follows:

- 2005 Average Day Demand (ADD): 1,682 AFY (1.50 MGD)
- 2005 Per Capita Demand: 234 gpcd
- Maximum Month Demand: 1.6 times ADD
- Build-out ADD: 2,260 AFY (2.02 MGD.)
- Build-out ADD (2025): 2,239 AFY (1,989 AFY Groundwater and 250 AFY Nacimiento Water)

Water Supply- Exisiting. The Templeton CSD depends on water from eleven wells that extract water from two groundwater sources: the Paso Robles Formation and the Salinas River Underflow. Nine of the eleven wells that extract water from the Paso Robles Formation are extracting from the Atascadero Groundwater Subbasin.

The Templeton CSD currently is permitted to extract 500 AFY from the Salinas River Underflow between October 1 and April 1. There are two wells that tap this aquifer, though only one, the Smith Well, is in service. The Templeton CSD may request from CDPH an extended permit to continue to pump from the river wells through May 15 if sufficient water is available and flowing during that time.

An additional source of water for the Templeton CSD comes from their re-use program with disposal of treated wastewater effluent from the Meadowbrook WWTP percolation ponds. This program allows the Templeton CSD to percolate treated effluent into the groundwater basin/Salinas River underflow and subsequently extract the same amount of water 28 months later. According to the 2005 Water Master Plan, wastewater flow to the Meadowbrook WWTP at that time was 148,000 gpd (165 AFY) with 30 AF being used to irrigate an alfalfa field. Therefore the Templeton CSD at that time had been withdrawing approximately an additional 135 AFY from the Salinas River allocation. Additional water extracted from the remaining two wells on the Salinas River accounted for approximately 649 AFY in 2005.

According to the 2005 Water Master Plan, the Templeton CSD's summer demand at that time was approximately 1,165 AFY. Because the Templeton CSD's available allocations during the summer are 1,710 AF, Templeton CSD was considered to have adequate supply to meet the current 2005 summer demand. Winter 2004/2005 demand for the Templeton CSD was estimated at 715 AF; however winter supply allocation only added up to 566 AF plus minimal water from the Paso Robles GB. Therefore, during the winter months the Templeton CSD was limited on water allocations.

Table 3.10 (Table 4-3 from the 2005 Water Master Plan) summarizes the existing water supply and allocations for Templeton CSD.

Table 3.10. Summary of Existing Water Supplies for Templeton CSD

		Summer Allocation 4/1 – 9/30	Winter Allocation 10/1 – 3/31	Total Allocation
Paso Robles Formation		--	--	1,700/1,550 AFY[1, 2] Safe Yield
Salinas River				
	Templeton CSD Allocation	--	500 AFY	500 AFY
	Riparian Rights	No increase to water supply	No increase to water supply	No increase to water supply
	Greer Riparian Rights	0.26 cfs 94 AF	--	94 AFY
	Re-Use Program	66 AF[3]	66 AF[3]	132 AFY
Total Allocation from all sources				2276 AFY

[1] 1,700 is the Safe Yield for all users of the Templeton Sub-Unit. Private well owners utilize approximately 150 AFY, leaving 1,550 AFY for Templeton CSD

[2] The Templeton CSD can extract water from the Paso Robles Formation any time during the year, however, the Templeton CSD extracts the majority of the water during the summer months when the main river water allocation is not available. The Paso Robles Formation is only used during the winter to help meet peak demands that the Smith Well is unable to meet.

[3] Allocation based on the existing wastewater demand minus the irrigated effluent minus 2 percent water loss.

Water Supply – Future: Future water supply for the Templeton CSD will likely come from the Nacimiento Water Project (NWP), which is currently under construction. The Templeton CSD is under contract to receive 250 AFY from the NWP. Templeton CSD plans to receive raw water from the NWP and percolate this water into the Salinas River underflow, in a similar manner that they percolate effluent from the Meadowbrook WWTP percolation ponds (Selby Pond site). This 250 AFY of percolated NWP water will then be extracted from the Templeton CSD's downstream potable water well field. In addition, the Templeton CSD may be making future provisions to divert additional wastewater flows to the Meadowbrook WWTP (which currently flow to the City of Paso Robles WWTP) in order to recycle additional treated effluent from the Salinas River underflow, increasing available water for extraction by as much as 458 AFY. These future water supply provisions are referenced in the 2005 Water Master Plan, and are included as recommendations for future water supply. In addition, the 2005 Water Master Plan recommended that Templeton CSD consider additional water supply wells (such as the McCoy well) to further enhance their ability to meet summer demand conditions. It is believed that this well has in fact been completed in recent years.

Table 3.11 summarizes future water supply sources for Templeton CSD.

Table 3.11. Future Water Supply Sources for Templeton CSD

Future Water Source	Allocation (AFY)
Nacimiento Water Supply	250
Re-Use Program (Existing Distribution System)	115
Re-Use Program (Future Diversion of WW Flows)	343
McCoy Well	--
Total	708

Water Quality. Based on the 2005 Water Master Plan, and review of current CCRs, the Templeton CSD's water supply to its customers meets all water quality standards. In general, the river wells have lower total dissolved solid levels than the Atascadero Groundwater Basin; however, all of the wells are below the upper limits of the drinking water standard of 1,000 mg/L. The Templeton CSD's overall aggregate TDS quality to its customers, as reported in the 2004 CCR, was 653 mg/L. This is based on how the Templeton CSD distributes and blends the various water supplies to its customers.

Atascadero Mutual Water Company

Source: *2005 Atascadero MWC UMWP and Draft 2009 Master Water Plan*

The Atascadero Mutual Water Company (Atascadero MWC) of San Luis Obispo County is a corporation organized under the laws of California for the purpose of providing water service to property owners, known as the shareholders, within a geographical service area. Atascadero MWC supplies its customers with domestic water service and fire protection.

Land Use and Service Population. The City of Atascadero is a community located in San Luis Obispo County, California along Highway 101 between the City of Paso Robles and City of San Luis Obispo. The City was originally subdivided as a colony in 1914 when the colony boundary was established. Atascadero MWC was established around this time and still retains its original form. The entire water system is the property of Atascadero MWC and is mutually owned by owners of the colony lots. Atascadero was incorporated as a City in 1979. The City of Atascadero now consists of a mix of residential, commercial, agriculture, and recreational areas. Atascadero MWC's service boundary operates within the colony boundary. Within this colony boundary are the Atascadero city limits and some of the unincorporated areas of the community such as the Eagle Ranch Property, the West San Marcos Development, and the area south of Santa Rosa Road known as the Random Oaks area.

Eagle Ranch, a large proposed development on the southwest side of the City, is only partially within Atascadero MWC's service area boundary. Atascadero MWC will serve the existing portion of the development within its boundary and another small portion proposed for inclusion. Adequate water supply for all of Eagle Ranch has yet to be confirmed.

Existing Population: In 2008, the Atascadero MWC served a population of 30,595 with 10,505 service connections.

Build-out Population: The Atascadero MWC projects a 2030 population of 37,436.

Water Demand. Water demand is summarized as follows:

- 2008 Average Day Demand (ADD): 6,565 AFY (5.86 MGD)
- 2008 Per Capita Demand: 192 gpcd

According to Atascadero MWC records and demand forecasts, average annual per capita demand has fluctuated in the range of 188 to 213 over the past decade, with lower water use possibly linked to mandatory conservation measures. It is anticipated that water conservation programs will cause lower per capita demands to become the rule rather than the exception. A per capita demand of 199 gpcd is used to estimate a future peak demand of 7,600 AFY in 2019 with a population of 34,016. Thereafter, conservation measures are predicted to more than compensate for population growth, resulting in a build-out demand of 7,511 AFY in 2030 for a population of 37,436.

- Peak Future ADD: 7,600 AFY (6.79 MGD) based on a population of 34,016 in 2019

Water Supply - Existing**.** The Atascadero MWC's water source is the groundwater found in the Atascadero sub-basin of the Paso Robles Groundwater Basin (PRGB) and underflow of the Salinas River. Water is pumped from 17 active wells with two additional wells on standby status. The PRGB is not currently adjudicated. Atascadero MWC derives approximately 42% of its supply from the PRGB with the remainder coming from the Salinas River underflow. Atascadero MWC has rights to 3,372 AFY from the Salinas River underflow. As the Salinas River underflow is more sensitive to rainfall, during dry years the proportionate withdrawal from the deeper PRGB has increased.

The current water supply system is under stress due to the ongoing drought. During the spring of 2009, the Atascadero MWC issued a stage 2 water shortage condition alert when reserve production capacity fell to less than 10% of the maximum day demand. Stage 2 mandatory conservation measures include a ban on daytime landscape watering, required alternate irrigation schedules, and a prohibition of irrigation runoff.

Water Supply - Future. The Atascadero MWC is a major partner of the Nacimiento Water Project, having contracted for a 2,000 AFY allotment of this future supply. The water will be used to recharge the groundwater table in the vicinity of the deep wells which pump from the Atascadero sub-basin. The water can then be treated in the same manner as the existing source of supply. The Atascadero MWC is also exploring the expansion of its current well fields.

Water Conservation: Atascadero MWC continues to aggressively promote water conservation, as it has since 1993. Atascadero MWC's program has reduced per capita indoor water use and the use of potable water for landscape irrigation. Atascadero MWC provides educational resources on its website, in its offices, and in periodic brochures included with water bills. Atascadero MWC made a further commitment to conservation in 1997, signing an MOU with the California Urban Conservation Council and continues to implement and meet the goals of Best Management Practices for Water Conservation including

- Conservation Rate Structure (i.e. Tier Water Rates)
- Turf conversion rebates
- Lawn aeration rebates

- Sprinkler nozzle replacement rebates
- Irrigation controller rain sensor rebates
- Weather based irrigation controller and soil moisture sensor rebates
- Rainwater harvesting system rebates
- High efficiency clothes washing machine rebates
- High efficiency toilet rebates
- School education programs
- Free seminars on water conserving landscape design and plant selection
- Free landscape/home water surveys
- Annual Water-Conserving Landscape awards

Atascadero MWC is a member of the California Urban Water Conservation Council, Groundwater Guardian Program, Alliance for Water Efficiency, Water Education Foundation, and SLO County Partners in Water Conservation.

Water Quality. Atascadero MWC's water supply to its customers meets all primary and secondary water quality standards.

Salinas/Estrella WPA 14

San Miguel Community Services District

Source: *2002 San Miguel CSD Water Master Plan*

The San Miguel CSD supplies its customers with domestic water service and fire protection, among other services.

Land Use and Service Population. The unincorporated Community of San Miguel is one of 6 urban areas within the County of San Luis Obispo Salinas River Planning Area Plan. According to the 2002 Water Master Plan, the current population within the San Miguel CSD boundary was approximately 1,500 and is expected to increase to 3,742 at build-out (2040) within the existing CSD boundary.

The San Miguel CSD Service Area covers approximately 1,530 acres. The land use zones are Residential Single Family (RSF), Residential Multi-Family (RMF), Residential Suburban (RS), Office/Professional (OP), Commercial Service (CS), Commercial Retail (CR), Recreation (REC), Public Facility (PF), Agriculture (AG), Residential Rural (RR), and Industrial (IND).

Water Demand. Water demand is summarized as follows:

- 2001 Average Day Demand (ADD): 235 AFY (0.21 MGD)
- 2001 Per Capita Demand: 139 gpcd.
- Future ADD at Build-out: 582 AFY (0.52 MGD)
- Maximum Month Demand: 1.5 times ADD

Water Supply. The water supply for the San Miguel CSD is obtained solely from groundwater pumping of the Paso Robles Formation. There are three wells within the CSD; the

two primary wells (Well No. 3 and Well No. 4) are located in the Main Zone. Well No. 5, a smaller well is located in the San Lawrence Terrace (SLT) Zone. The SLT well historically exhibited high nitrate levels and has since been removed from service. However, in 2007, the District replaced Well 5 with a new well in the same location, but installed deeper (approximately 800 feet). After water quality testing confirmed this well met all potable water standards, it was placed in service, but since has experienced occasional high nitrate concentrations and possibly high arsenic concentrations. This new well is temporarily out of service while District further evaluates this well. The two active wells in the main zone combined, historically produced an average of 247 AFY (average for 1999 and 2000), as summarized in Table 3.12 (Table 4 from the 2002 Water Master Plan). The wells have a combined well pumping capacity of 1000 gpm; 600 gpm at Well No. 4 and 400 gpm at Well No. 3.

Table 3.12. Summary of Well Capacity and Production

Well	Capacity[1], gpm	Historical Production[2], AFY	Maximum Production[3], AFY
Well No. 3	400	110	323
Well No. 4	600	137	484
Total	**1000**	**247**	**807**

Notes: 1. Well capacity refers to the maximum pumping rating of the well
2. Historical Production is the average amount of water the wells produced in 1999 and 2000
3. Maximum production is the amount of water the wells could produce if run 12 hours per day 365 days per year

Water Quality. The presence of gross alpha emitters approaching the MCL in the San Miguel water supply is of growing concern. The presence of gross alpha emitters is from naturally occurring decay of Uranium-238 and Thorium-232. The two main zone wells operated by the San Miguel CSD have shown increasing levels of gross alpha particles through the years, although the average is currently below the proposed MCL. Several of these samples indicate gross alpha levels in exceedence of the proposed MCL of 15 pCi/L. Well No. 4 gross alpha levels have an average of about 12 pCi/L as of October 2000; however, there are 5 recorded instances when the proposed MCL was exceeded in the previous 5 years. The uranium levels at Well No. 4 are below the proposed MCL and show a decreasing trend, with an average of about 10 mg/L. Well No. 3 gross alpha levels have an average of about 15 pCi/L as of October 2000; however, the proposed MCL was exceeded 7 times in the previous 8 years. Uranium levels at Well No. 3 show an increasing trend, with an average of about 12 mg/L. All of the uranium results have remained below the proposed MCL of 20 mg/L.

As indicated earlier, the new well on the San Lawrence Terrace, drilled to a depth of approximately 800 feet (screened from approximately 300 feet to 800 feet elevation), has exhibited occasional high nitrate levels and possibly high arsenic levels. Information is very preliminary at this time, and it is unclear if this well will be able to produce potable water without any wellhead treatment.

Camp Roberts

Source: *San Miguel CSD/Camp Roberts Water System Consolidation Study, 2002*

Camp Roberts is operated by the California Army National Guard, and covers approximately 42,784 acres. Camp Roberts, located north of the community of San Miguel, is situated in both San Luis Obispo and Monterey Counties.

Land Use and Service Population. When fully mobilized the base supports 8,500 people. In the event of a nuclear disaster at Diablo Canyon Nuclear Power Plant, Camp Roberts is an evacuation and staging area for about 23,000 residents within San Luis Obispo County. No growth is expected for Camp Roberts; however, based on the above discussion, water demand and temporary service population can vary widely. Base population can be a combination of on-base personnel and civilian personnel that do not live on Base.

Water Demand. For Camp Roberts, the existing ADD was determined to be 0.17 mgd, based on a review of water production records for the year 2001. Current 2008/2009 water demand was not readily available at the time of this memorandum; however, updated information will be provided if available.

- 2001 Average Day Demand (ADD): 190 AFY (0.17 MGD)
- 2001 Per Capita Demand: Unknown
- Future ADD at Build-out: 190 AFY (0.17 MGD)
- Maximum Month Demand: 1.4 times ADD

Water Supply. Camp Roberts water supply is from groundwater pumping, with three active wells. Combined well capacity is 947 AFY (based on pumping 12 hours per day, 365 days per yeaer). Pumping rates range from 225 to 500 gpm per well.

Water Quality. TDS and arsenic levels in the groundwater are marginal. According to 2001 reports, Base water supply TDS is 900 mg/L. Also, the arsenic levels in 2001 were noted to be 9.6 ug/L, just below the MCL of 10 ug/L.

City of Paso Robles

Source: *2005 City of Paso Robles UWMP and correspondence from Christopher Alakel*

The City of Paso Robles is located in northern San Luis Obispo County (North County), on the eastern, inland side of the Santa Lucia Mountains. Paso Robles is situated on the upper Salinas River, which flows north toward Monterey County. Incorporated in 1889, the City of El Paso de Robles (Paso Robles) now encompasses a total area of 11,985 acres on both sides of the Salinas River. Other communities in the vicinity of Paso Robles include Templeton, the City of Atascadero, Santa Margarita, and San Miguel. The City also is situated on the western margin of the Paso Robles Groundwater Basin, which is the water-bearing portion of the upper Salinas River drainage area.

Land Use and Service Population. The first major commercial activity in the North County was cattle grazing, followed by development of almond groves and most recently, extensive planting of vineyards. In addition to its agricultural base, Paso Robles also has a long history as a resort, based primarily on development of the local hot springs. Paso Robles remains the major service center for ranching and agriculture in the North County, particularly areas to the east along Highway 46. The City proper is a mix of residential, commercial and industrial land uses, with significant areas devoted to parks and open space. Paso Robles, with

a 2005 population of 27,361, is a growing community that could attain a population of 44,000 at build-out.

Existing (2005) Connections are summarized as follows:

- Single Family Residential: 8,100
- Multi-Family Residential: 1,600
- Commercial: 632
- Industrial 63
- Parks, Landscape, etc. 325
- TOTAL 10,720

Build-out Connections are summarized as follows:

- Single Family Residential: 13,400
- Multi-Family Residential: 9,300
- Commercial: 2,146
- Industrial 214
- Parks, Landscape, etc. 500
- TOTAL 25,560

Water Demand. Current demand is based on actual consumption while build-out is based on water duty factors summarized as follows:

- 2007 Average Day Demand (ADD): 8,126 AFY (7.26 MGD)
- 2005 gross water use: 220 gpcd
- 2005 Water Duty Factors:
  - Single family residential: 0.5 AFY (446 gpd/meter)
  - Multi-family residential: 0.4 AFY (357 gpd/meter)
  - Commercial/industrial: 1.5 AFY (1338 gpd/meter)
  - Irrigation/other 2.6 AFY (2319 gpd/meter)

- Build-out ADD (2025): 13,500 AFY (12.05 MGD)

Water Supply. The City of Paso Robles has historically relied upon local water supplies from the Salinas River underflow and from the Paso Robles Formation (PRF) for its municipal water supply.

Salinas River underflow refers to shallow subterranean flows in direct connection with the Salinas River. This underflow is subject to appropriative water rights and permitting by the State Water Resources Control Board (SWRCB). An approved SWRCB application allows the City to extract up to eight cfs (3,590 gpm) with a maximum extraction of 4,600 AFY (January 1 to December 31).

The deeper PRF currently contributes 2,856 AFY to City supply. The City plans to maintain this extraction rate in the future.

The City participates in the Paso Robles Groundwater Basin Agreement with San Luis Obispo County Flood Control and Water Conservation District (District), CSA 16 – Shandon, San Miguel CSD and approximately 20 landowners, who have organized as the Paso Robles

Imperiled Overlying Rights (PRIOR) group. Key elements of the Agreement are a clear acknowledgement that the PRGWB is not in overdraft now, and that the parties will not take court action to establish any priority of groundwater rights over another party as long as the Agreement is in effect. In addition, the parties agree to participate in a meaningful way in groundwater management activities, and to develop a plan for monitoring groundwater conditions in the PRGWB.

Water Supply – Future: To assure its water supply into the future, the City will purchase water from the Nacimiento Water Project, which is projected to deliver 4,000 AFY of raw water. The City is progressing with its plans for a water treatment plant; the City's Capital Improvement Program includes design of the water treatment plant beginning in 2007, construction starting in 2009, and startup of the plant in 2010 to coincide with first availability of Nacimiento water. The City will have the option of increasing its allotment of Nacimiento water to 8,000 as demand increases.

Another supply alternative being pursued by the City is the use of recycled wastewater. The City owns its own wastewater treatment plant which currently provides secondary treatment. Several alternatives have been studied to upgrade treatment to the tertiary level, and it is assumed that one of these alternatives will eventually be pursued. 5,000 AFY of wastewater could ultimately be treated, but 944 AFY would only be needed to meet build-out demand. This margin of safety serves as a backup source in case of limitations on any of the other sources of supply.

Water Conservation: The City has implemented a number of permanent mandatory water conservation measures that are in force throughout the water service area. They include mandatory recycling or recirculation of water for car washes, cooling systems, and decorative fountains and several other practices designed to curb water waste.

The City has targeted landscape irrigation as the water use practice with the highest potential for water conservation. Educational resources are available on the City website, in City offices, and in periodic brochures included with water bills. The City also sponsors a school education program that includes water conservation as a key component.

The City is a member of Partners in Water Conservation.

Water Quality. In general, City water quality is good, but has relatively high TDS and hardness. In response to the hardness, many residents use home water softeners. However, use of water softeners results in addition of salts to the City's wastewater, which is treated and discharged to the groundwater basin and/or Salinas River. This is one factor in locally increasing TDS and chloride in groundwater. This situation may be improved in the future with the introduction of Lake Nacimiento water into the City's potable water supply. Lake Nacimiento water is lower in hardness and TDS than groundwater, and reduces the need for water softeners.

With regard to regional groundwater quality, the Estrella subarea of the Paso Robles Groundwater Basin, which includes most of the City, is characterized locally by increasing TDS, chloride and nitrate concentrations. These adverse water quality trends are unlikely to affect City water supply in the near future, given that groundwater currently provided by the City meets all drinking water standards and the increases in TDS, chloride and nitrate are localized. Nonetheless, salt loading to the groundwater basin is an important long-term concern. Recognizing that City wastewater disposal is one source of salt loading, the City has made the

reduction of salt loading one of their water resource goals. Major means to reduce salt in City wastewater include planned use of high-quality Lake Nacimiento supply, reduced use of home water softeners, strategic use of wells with lower salt concentrations, and implementation of an industrial waste discharge ordinance.

County Service Area 16 (Shandon)

Source: *2004 CSA 16 Water Master Plan, plus written updates provided by Jay Johnson, County of San Luis Obispo.*

County Service Area No.16 (CSA 16) was formed in 1972 to furnish potable water to customers in the Shandon area. Narrative and data are based on the 2004 Water System Master Plan.

Land Use and Service Population. CSA 16 provides water service to 284 residential customers, 11 public authorities, and one business. The Urban Reserve Line encompasses areas outside of the existing service boundary, so the future size and composition of the customer base will likely change. Within the existing community of Shandon, build-out service is expected to reach up to 547 service connections. However, the Shandon Community Plan is being updated that could result in a total of 2,200 residential connections and over 50 commercial and public authority service connections. The projected population is approximately 8,125. The Community Plan Update is expected to be completed by the end of calendar year, 2010.

Water Demand. Water demand is summarized as follows:

- 2004 Average Day Demand (ADD): 147 AFY (0.131 MGD)
- Build-out ADD : 271 AFY (0.242 MGD) (excludes pending Community Plan Update; Build-out of the Community Plan would result in an ADD of 1,100 AFY (1.0 MGD)

Water Supply. The current source of supply for the community of Shandon is groundwater from the Paso Robles Basin. Two wells provide all the current needs of the community and the groundwater supply is deemed sufficient to meet water needs at build-out in the current service area. Additional well(s) and storage will be needed to meet peak demand requirements for build-out.

CSA 16 has no supplemental water source, but does have an allocation of 100 AFY from the State Water Project. Because of the high cost to develop this supply and the lack of need at the time, in 1995, the Board of Supervisors approved offering their 100 AFY allocation for sale to other entities in the County. Since that time, only 15 AF of the 100 AFY has been secured via a transfer option agreement. This agreement expired in 2009 without the transfer taken.

Water Quality. The water in Shandon meets all Federal and State drinking water requirements and overall can be considered very good water. However, Shandon's water is considered to be hard, with an average concentration of 190 parts per million. Non-salt generating systems are recommended for individuals who want to use a water softener.

Cholame WPA 15

The Cholame WPA has no large water purveyors. Water usage in this WPA is analyzed as overlying use.

Nacimiento WPA 16:

Oak Shores (Nacimiento Water Company)

The community of Oak Shores, on the banks of Nacimiento Lake, is served by the Nacimiento Water Company (NWC), a public utility with offices in Bradley. NWC currently serves a population of 275 residents with water drawn from the lake which is then treated prior to distribution.

Plans to develop an additional 345 lots as part of Oak Shores Estates are currently on hold.

The water supply allocation for Oak Shores is part of the 1,750 AFY reserved for SLO County residents in the Lake Nacimiento area.

Heritage Ranch Community Services District

Source: *2008 Heritage Ranch Water Master Plan with updates*

The Heritage Ranch Community Services District (Heritage Ranch CSD) was formed in 1990 to oversee water and sewer services for the Heritage Ranch community. It supplies its customers with domestic water service and fire protection, among other services.

Land Use and Service Area Population. Heritage Ranch is an unincorporated community located in San Luis Obispo County, California on the east side of Lake Nacimiento, approximately 15 miles northwest of the City of Paso Robles. Land use at Heritage Ranch consists mostly of residential, recreational, and open space areas with some commercial and public facility areas including a small commercial parcel, fire station, public school, recreational complex, marina, campground, wilderness park, ballpark, church, equestrian center, and storage area for boats and trailers. A community that was originally started as a remote vacation destination with the vast majority of the residents only part-time has now become a bedroom community to neighboring cities with the vast majority of the residents full-time.

Existing Population: As of September 2010, the Heritage Ranch CSD services approximately 1,778 water customers. Based on a density of 2.0 persons per household, this equates to an existing population of approximately 3,556 persons.

Build-out Population: The Adopted Specific Plan for the Heritage Ranch CSD, prepared in 1972 and revised in 1980, limited the total number of developable units to 4,000. In 2004, the maximum number of developable units was revised a second time to its current maximum value of 2,900 units. Residential units within the Heritage Ranch CSD consist of a combination of several housing tracts, custom homes, condominiums, mobile homes, and recreational trailers. Based on the average household size of 2.0 persons per household, it is anticipated that the Heritage Ranch CSD's total build-out population will reach 5,800 persons.

Water Demand. Water demand is summarized as follows:

- 2007 Average Day Demand (ADD): 618.5 AFY (0.552 MGD)
- 2007 Per Capita Demand: 158 gpcd
- 2010 Average Day Demand (ADD): 553 AFY (0.493 MGD)
- 2010 Per Capita Demand: 139 gpcd
- Future ADD: 903 AFY (0.81 MGD)

Water Supply - Existing: The Heritage Ranch CSD only has one water supply source, the Gallery Well, which is fed via three horizontal wells located in the Nacimiento River bed just downstream of the Nacimiento Dam. Typically, the Nacimiento River is fed year-round by the release of water through the upper and/or lower outlet works in the dam at Lake Nacimiento. The release of the water is monitored and controlled by Monterey County Water Resources Agency until the water level of the Lake drops below 687 feet, at which time San Luis Obispo County may obtain control over the lake releases. The water is primarily released to sustain habitat in the river, provide water to farmers in the Salinas Valley, and halt salt water intrusion into the Salinas Valley, in addition to providing a water supply source to the Heritage Ranch CSD. If no water is released from the lake, which has rarely occurred in the past 50 years, the Heritage Ranch CSD will not have a water supply. Even though the water level of Lake Nacimiento has never dropped below the dam outlet, it has come close. The last time this occurred was in October of 1989 where the lake level diminished to within 2 feet above the lower outlet works.

The 1,100 AFY of allocation of Nacimiento Reservoir water designated for use in Heritage Ranch's service area is part of the 1,750 AFY reserved for SLO County residents in the Lake Nacimiento area. It is sufficient to provide water for build-out demand, but the configuration of the delivery system leaves the Heritage Ranch CSD vulnerable to a cut off of its water supply in an extreme drought.

Water Supply - Future: Alternative sources are under consideration, including taking water directly from the lake and connecting to the Nacimiento Pipeline. A possible tie-in with Camp Roberts was explored, but is now considered as not being a feasible option due to the reluctance of Camp Roberts to consider any emergency water supply options.

Water Conservation: Water demands over the last 3 years have decreased due to an increase in water rates and implementation of water conservation programs such as for toilet retrofits and turf conversion.

Water Quality. While the Heritage Ranch CSD's water supply to its customers has historically met all primary water quality standards, it currently exceeds the limits for Disinfection Byproducts (DBP). The treatment plant has been ineffective in removing sufficient natural organic matter to prevent the formation of DBP. The District Board hired a water treatment process engineering consultant and received a report with recommendations on new treatment equipment to better control DBP in September 2010. New equipment/processes include addition of treatment chemicals (Potassium Permanganate and Powdered Activated Carbon) and a new sedimentation basin to prevent the formation of DBP. This equipment/process will also prevent iron and manganese formation in the distribution system. The District applied for $400,000 in State funding to complete these improvements. The project should be bid out, constructed and operational in 2011.

COUNTY-WIDE WATER QUALITY

Water quality varies greatly from agency to agency, within groundwater basins and sub-basins, from each imported or reservoir water supply. Although they vary greatly, they are all required to meet the same primary and secondary drinking water standards established by the California Department of Public Health. As part of the overall review of water quality throughout the County, Table 3.13 summarizes mineral quality (TDS), nitrates, and hardness as it relates to their ability to meet state drinking water standards. The table includes specific remarks relative to individual water quality issues with each purveyor.

Table 3.13 – Summary of County-Wide Water Quality

Sub-Region	WPA	Water Users/ Generators/Sources	Water Quality			Water Supply[a]	Remarks
			TDS, mg/L	Nitrates, mg/L	Hardness, mg/L		
North Coast	San Simeon WPA 1	San Simeon CSD	380	6.9	300	GW	Recharge from Little Pico Creek
		Overlying Users					
	Cambria WPA 2	Cambria CSD	440	1.8	328	GW	
		Overlying Users					
	Cayucos WPA 3	Morro Rock Mutual	See CSA 10A below			SW[b]	
		Paso Robles Beach	See CSA 10A below			SW[b]	
		CSA 10A	370	ND	260	SW[b]	0.34% provided by CAWO well in 2008. Contribution to water quality considered negligible
		Overlying Users					
	Morro Bay WPA 4	City of Morro Bay	357	2.3	120	ST, DS	Brackish water desalination on standby. 85% of City's water supply provided by State Water in 2008.
			598	37.3	522	GW	GW well nitrate levels exceed MCL. 15% of City's water supply provided by well water in 2008.
		CMC	389	2.3	280	SW[f]	CMC supplies water to County Ops/Office of Education, Cuesta College, and Camp SLO.
		County (Ops, Golf Course, Schools)	See CMC above			SW[f]	Dairy Creek Golf Course irrigated with tertiary recycled water from CMC WWTP
		Cuesta College	See CMC above			SW[f]	
		Camp SLO	See CMC above			SW[g]	
		Overlying Users					

Sub-Region	WPA	Water Users/ Generators/Sources	Water Quality			Water Supply[a]	Remarks
			TDS, mg/L	Nitrates, mg/L	Hardness, mg/L		
North Coast (cont.)	Los Osos WPA 5	Golden State Water	450	15	197	GW	Potential seawater intrusion impacts to lower .aquifer; upper aquifer nitrate contamination due to septic tanks, see discussion on Interlocutory Stipulated Judgment (ISJ)
		S&T Mutual				GW	
		Los Osos CSD	511	7.8	227	GW	
		Overlying Uses					
South Coast	San Luis Obispo/ Avila WPA 6	City of San Luis Obispo	380	4.8	No Data	SW[c,d], GW	Extensive tertiary recycled program serving area golf courses, schools and parks can provide up to 1,000 AFY for irrigation. Minimum 1.16mgd daily discharge provided for preservation of environmental habitat in San Luis Obispo Creek. Less than 2% of potable water supply provided by local wells.
		County Airport				SW[c,d], GW	Served by City of San Luis Obispo.
		Cal Poly				SW[c,d], GW	Whale Rock allocation treated by City WTP, and served to Campus.
		San Miguelito MWC				GW, ST	
		CSA 12				ST, SW[e]	
		Avila Valley MWC				ST, SW[e]	
		Port San Luis	See Avila Beach CSD below			ST	
		Avila Beach CSD	357	2.3	120	ST	
		Overlying Users					
	South Coast WPA 7	City of Pismo Beach	450	ND	330	SW[e]	
			357	2.3	120	ST	
			430	ND	290	Delivered	
			710, 820	5.3, ND	50, 450	GW	Well #5, #23 respectively

Sub-Region	WPA	Water Users/ Generators/Sources	Water Quality			Water Supply[a]	Remarks
			TDS, mg/L	Nitrates, mg/L	Hardness, mg/L		
South Coast (cont.)	South Coast WPA 7	City of Arroyo Grande	460	ND	360	SW[e]	Agency is considering seawater desalination or recycled water program to augment future water supply.
			273	ND	101	ST	
			553	23.4	366	GW	
		Oceano CSD	366	ND	230	SW[e], ST	Groundwater selenium levels are high in two wells; blending is used to ensure compliance with MCL.
			680	9	510	GW	
		City of Grover Beach	430	No Data	290	SW[e], ST	Agency is considering seawater desalination or recycled water program to augment future water supply.
			428	11.2	260	GW	
		Halcyon				GW	
		SLO County Dept. of Public Works Lopez Project 2008 Water Quality Report	450	No Data	330	SW	
			430	No Data	290	Combined SW + ST	
		Overlying Users	650	17	490	GW	1995-2000 median values for 25 wells. Nitrate MCL exceeded in 6 of the wells.
		Edna Road/Golden State Water Co.	690	8.8	430	GW	
		PXP				GW	
		Pismo Valley Overlying Users	620	ND	356	GW	1999 median values for 6 wells. TDS MCL exceeded in one of the wells.
		AG Valley Overlying Users	600	4.2	430	GW	1981-87 median values for 5 wells. Nitrate MCL exceeded in 1 well and TDS MCL exceeded in one other well.
South	South Coast WPA 7 (cont.)	SLO Co portion of Santa Maria Valley Overlying Users	1200	3	480	GW	1992-1998 median values of 4 wells in SLO County portion of Santa Maria Valley (2 wells have 11 separate piezometers). TDS MDL exceeded at 3 of the wells. Hardness data from

Sub-Region	WPA	Water Users/ Generators/Sources	Water Quality			Water Supply[a]	Remarks
			TDS, mg/L	Nitrates, mg/L	Hardness, mg/L		
Coast (cont.)							most recent available test (1980s).
	South Coast WPA 7 (cont.)	Nipomo CSD	581	7.6	310	GW	Currently in design of inter-tie pipeline to convey potable water from City of Santa Maria to Nipomo CSD.
		Golden State Water Co.	451	16	213	GW	
		Rural Water Company				GW	
		Woodlands	393	10.5	303	GW	Three GW wells on-site provide supply.
		Conoco Phillips				GW	
		Overlying Users	500	10	220	GW	1990-2000 median values for 35 wells.
	Huasna WPA 8	Overlying Users					Private well data not published for public use.
	Cuyama WPA 9	Cuyama CSD				GW	
		Overlying Users					Private well data not published for public use.
Inland	Carrizo Plain WPA 10	Overlying Users					
	Rafael/ Big Spring WPA 11	Overlying Users					
	Santa Margarita WPA 12	Santa Margarita Ranch				GW	Not in use; allocated for future residential development
		CSA 23	360, 390	ND, 7.5	160, 290	GW	Well #3, #4 respectively
	Atascadero/ Templeton WPA 13	Garden Farms					
		Atascadero Mutual Water Company	665	6.9	346	GW, SW[b]	Nacimiento water will be percolated into the local groundwater and extracted for use, starting 2010.
Inland (cont.)	Atascadero/ Templeton WPA 13	Templeton CSD	755	9.7	455	GW, SW[b]	Percolated wastewater effluent from Meadowbrook WWTP to underflow of Salinas River is “reclaimed” by downstream potable water supply wells. Nacimiento water will be

Sub-Region	WPA	Water Users/ Generators/Sources	Water Quality			Water Supply[a]	Remarks
			TDS, mg/L	Nitrates, mg/L	Hardness, mg/L		
	(cont.)						percolated into the local groundwater and extracted for use, starting 2010.
			530-930	ND-42	150-610	Paso GW Basin	Data from 2005 Master Plan (2003/04 CCR).
			490-510	3-5	330-368	Salinas River Underflow	
		Overlying Users					
	Salinas/Estrella WPA 14	City of Paso Robles	518	6.5	253 (14.8 grains/gal)	GW, SW[b]	The City expects to incorporate Nacimiento water into its water supply beginning Year 2010.
		San Miguel CSD	580	4.3	280	GW	Both main Zone wells have concerns with rising levels of Radionuclides. San Lawrence Terrace well (east of Salinas River) may have possible high nitrate and arsenic levels.
		CSA 16	405	16	90	GW	
		Camp Roberts					
		Overlying Users					
	Cholame WPA 15	Overlying Users					
	Nacimiento WPA 16	Oak Shores					
		Heritage Ranch CSD	180	0.9	140	SW	Water taken from Nacimiento River 3000 ft downstream of the lake
		Overlying Users					

[a]ST=State Water; GW=Groundwater; SW=surface/lake water; DS=brackish or seawater desalination; NA=not applicable; ND=non-detected
[b]Whale Rock reservoir
[c]Future water supply will include Nacimiento Water Project water
[d]Surface water supply includes Whale Rock and Santa Margarita reservoirs
[e]Surface water supply includes Lopez/Zone 3 water
[f]Surface water supply includes Whale Rock Reservoir, State Water and Chorro Reservoir
[g]Surface water supply allocation is from Chorro Reservoir only; however, combined surface waters delivered include Whale Rock, State Water and Chorro Reservoir.

APPENDIX D – MEMORANDUM, SAN LUIS OBISPO COUNTY WATER DEMAND ANALYSIS METHODOLOGY AND RESULTS, ESA, JANUARY 11, 2010

ESA

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DRAFT memorandum

date January 11, 2010

to Courtney Howard, San Luis Obispo County; Water Resources Advisory Committee (WRAC)

from Annika Fain, ESA; Eric Zigas, ESA

subject San Luis Obispo County Water Demand Analysis Methodology and Results

Background

San Luis Obispo County (County) has experienced multiple droughts, degradation of groundwater, and limited water supplies. The San Luis Obispo County Flood Control and Water Conservation District (District), with the assistance of the Carollo consulting team (team includes ESA, Wallace Group, Fugro, and Cleath), is preparing an updated County Master Water Plan (MWP). The previous version of the MWP was completed in 1998 (County, 1998). Since then, there have been many changes in the water resources in the County, including the completion of local and regional water management plans, formation of the Integrated Regional Water Management Plan (IRWMP), new water sources, new water users, and new water regulations.

The updated MWP incorporates these changes and provides all entities in the County with information and tools to help effectively and efficiently manage water resources to protect ecosystems, public health and safety, and agriculture. The County, with the assistance of consultants, has compiled and calculated the water supply and water demand. This document presents the methodology and results summary for the water demand analysis. For the water demand analysis, ESA utilized data and information provided by the WRAC and other stakeholders. The description of water resources management, urban water demand, and water supply inventory is presented in an Appendix to the updated MWP.

Total Water Demand

Definition

The total County water demand is divided into three categories: urban, rural, and agricultural. Total demand is defined as the sum of urban, agricultural, and rural demand. Environmental water demand refers to the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat. Environmental water demand is not included in the total demand because it needs to be compared to the entire amount of water in the watershed, rather than only the groundwater and surface water available to County users.

Method

The total water demand was calculated for existing and future conditions throughout the County. For calculating the existing water demand ESA utilized the most recent available data. Details about what data were used for the analysis are described in the urban, agricultural, rural, and environmental sections of this document. For future water demand ESA provided projected demand for the foreseeable future. ESA created a geodatabase, which includes all categories of water demand for existing and future conditions, as well as the total water demand, for each of the water planning areas (WPAs). The water demand has been compiled into spreadsheets that are generated by ArcGIS® layers. This allows the County to readily update any of the parameters related to water demand to conduct additional analyses. ESA utilized input from the WRAC, regional, sub-regional, and other stakeholders related to the total water demand methodology. Water purveyors throughout the County were contacted about existing and future conservation. Specific conservation factors were applied to the future urban water demand projections for urban areas where these factors were available.

Assumptions

Calculating the existing total water demand and projecting the future total water demand requires a number of assumptions, as well as review and analysis of existing data for each of the categories. Two general assumptions are outlined below while assumptions specific to each of the individual water demand categories are discussed within the individual category sections:

- Existing demands represent average annual use, in acre-feet per year (AFY). The demand can vary widely on smaller timescales, such as a daily or monthly demand.

- Future water demand is shown as a range whenever possible. For urban areas, the minimum projected future water demand accounts for conservation and the maximum projected future water demand represents a maximum buildout scenario as defined by water management plans and purveyors. The projected demand is not associated with a particular year because the year of maximum buildout is unknown and varies between water planning areas. For agricultural demand, the range represents the difference between using low and high end values for existing and future effective rain and irrigation efficiencies. For rural demand, the future range represents the difference between different development and conservation scenarios.

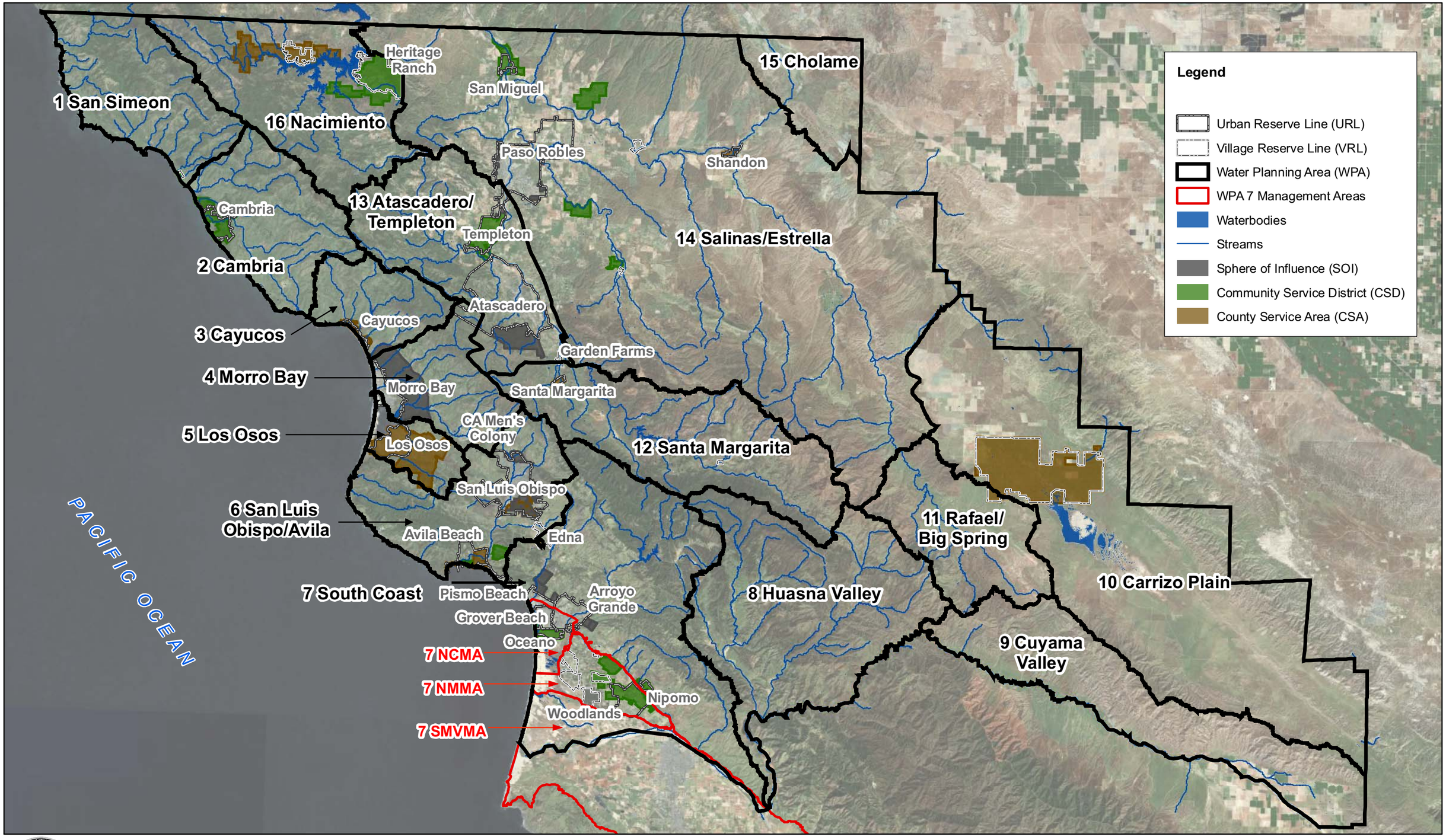
Total Demand by WPA

Table 1 summarizes the total water demand, including urban, agricultural, and rural water demand, as well as the environmental demand, developed for each of the 16 WPA's, **Figure 1** includes all 16 WPA's and the three management areas within WPA 7.

Urban Water Demand

Definition

Urban water demand refers to residential, commercial, industrial, parks, institutional, and golf course water demand within many of the unincorporated communities and incorporated cities in the County. For purposes of the MWP, the urban water demand includes all unincorporated communities and incorporated cities in the County where water purveyors have provided water demand information.



San Luis Obispo County Flood Control and Water Conservation District

MASTER WATER PLAN

San Luis Obispo County

Figure 1 Water Planning Areas in San Luis Obispo County

TABLE 1
EXISTING AND PROJECTED FUTURE WATER DEMAND FOR ALL WATER PLANNING AREAS[a]

WPA	WPA Name/ Category	Existing Demand (AFY)	Projected Demand (AFY)		
1	**San Simeon**				
Demand Category	Urban	108	213	-	224
	Agricultural	70	10	-	60
	Rural	20	50	-	50
	Total	**198**	**273**	**-**	**334**
	Environmental	72,980	72,980		
2	**Cambria**				
Demand Category	Urban	815	987	-	1,009
	Agricultural	640	740	-	1,490
	Rural	100	190	-	220
	Total	**1,555**	**1,917**	**-**	**2,719**
	Environmental	51,460	51,460		
3	**Cayucos**				
Demand Category	Urban	432	609	-	641
	Agricultural	520	430	-	800
	Rural	80	130	-	140
	Total	**1,032**	**1,169**	**-**	**1,581**
	Environmental	26,160	26,160		
4	**Morro Bay**				
Demand Category	Urban	3,112	3,460	-	3,532
	Agricultural	2,060	1,690	-	2,440
	Rural	120	190	-	220
	Total	**5,292**	**5,340**	**-**	**6,192**
	Environmental	27,880	27,880		
5	**Los Osos**				
Demand Category	Urban	2,043	2,727	-	2,870
	Agricultural	3,290	2,750	-	3,770
	Rural	20	20	-	20
	Total	**5,353**	**5,497**	**-**	**6,660**
	Environmental	7,040	7,040		
6	**SLO/Avila**				
Demand Category	Urban	7,871	10,787	-	11,355
	Agricultural	3,610	2,810	-	4,120
	Rural	450	610	-	660
	Total	**11,931**	**14,207**	**-**	**16,135**
	Environmental	33,030	33,030		
7	**South Coast**				
	Urban	410	458	-	482
	Agricultural	19,920	16,610	-	23,830
	Rural	1,480	1,990	-	2,160
Demand Category	NCMA[b]	11,326	13,142		13,854
	NMMA[b]	12,600	17,984		17,984
	SMVMA[b]	25,540	25,540		25,540
	Total	**71,276**	**75,724**	**-**	**83,850**
	Environmental	32,960	32,960		
8	**Huasna Valley**			-	
	Urban	0	0	-	0
Demand Category	Agricultural	1,550	2,060	-	2,820
	Rural	90	360	-	450
	Total	**1,640**	**2,420**	**-**	**3,270**
	Environmental	25,020	25,020		
9	**Cuyama Valley**				
	Urban	0	0	-	0
Demand Category	Agricultural	28,870	25,240	-	32,410
	Rural	10	80	-	100
	Total	**28,880**	**25,320**	**-**	**32,510**
	Environmental	Undetermined	Undetermined		
10	**Carrizo Plain**				
	Urban	0	0	-	0
Demand Category	Agricultural	800	680	-	890
	Rural [c]	210	9,610	-	12,740
	Total	**1,010**	**10,290**	**-**	**13,630**
	Environmental	Undetermined	Undetermined		

TABLE 1 (Continued)
EXISTING AND PROJECTED FUTURE WATER DEMAND FOR ALL WATER PLANNING AREAS

WPA	WPA Name/ Category	Existing Demand (AFY)	Projected Demand (AFY)		
11	**Rafael/Big Spring**				
	Urban	0	0	-	0
	Agricultural	0	0	-	0
Demand Category	Rural	0	470	-	620
	Total	**0**	**470**	**-**	**620**
	Environmental	Undetermined	Undetermined		
12	**Santa Margarita**				
	Urban	1,819	5,881	-	6,190
	Agricultural	1,770	1,720	-	2,680
Demand Category	Rural	240	450	-	520
	Total	**3,829**	**8,051**	**-**	**9,390**
	Environmental	32,850	32,850		
13	**Atascadero/Templeton**			-	
	Urban	8,538	9,359	-	9,852
	Agricultural	10,620	9,740	-	14,600
Demand Category	Rural	1,480	1,810	-	1,930
	Total	**20,638**	**20,909**	**-**	**26,382**
	Environmental	41,010	41,010		
14	**Salinas/Estrella**				
	Urban	8,126	11,634	-	14,543
	Agricultural	67,610	60,740	-	86,820
Demand Category	Rural	3,590	5,570	-	6,230
	Total	**79,326**	**77,944**	**-**	**107,593**
	Environmental	Undetermined	Undetermined		
15	**Cholame Valley**				
	Urban	0	0	-	0
	Agricultural	80	60	-	80
Demand Category	Rural	10	150	-	190
	Total	**90**	**210**	**-**	**270**
	Environmental	Undetermined	Undetermined		
16	**Nacimiento**				
	Urban	619	987	-	1,039
	Agricultural	3,860	4,740	-	7,120
Demand Category	Rural	280	730	-	880
	Total	**4,759**	**6,457**	**-**	**9,039**
	Environmental	108,390	108,390		

NOTES:

a Urban demand: Low projected demand includes conservation factor of 0 to 20 percent, based on conversations with Partners in Water Conservation. Agricultural demand: Affected by a wide range of conditions, including lack of data, weather conditions, changes in commodities and differences in irrigation practices. Future projections may not reflect the actual future water use or need, because of constant changes in farming practices. Projected agricultural demand may be significantly higher if more land is converted from dry to wet farming. Rural demand: Minimum projected rural demand reflects a 75 percent buildout scenario.

b Demand for WPA 7 management areas is from 2008 reports from NCMA (Todd Engineers, 2009), NMMA (NMMA, 2009), and SMVMA (Luhdorff and Scalmanini, 2009). SMVMA is approximated based on the proportion within San Luis Obispo County

c Carrizo Plain rural demand projections are based on existing zoning, which includes the potential for extensive California Valley development. The actual development may be much lower than 75 percent due to limited groundwater and other factors

Sources

Primary sources of data include the water system master plans (WSMP) and urban water management plans (UWMP) prepared by water purveyors, incorporated cities, and unincorporated communities. All of the urban areas have adopted a WSMP or UWMP during the last 10 years. Additionally, the County's *2008 Resource Management System Annual Resource Summary Report* provides existing projected water demand and population for these areas (County, 2008).

Method/Assumptions: Existing Use and Future Water Demand

Existing water use calculations and future water demand projections from WSMP's and UWMP's were used. UWMP's are available for all incorporated cities and include existing and future water demand. WSMP's are available for all of the unincorporated communities within Urban Reserve Lines (URLs) and some of the incorporated communities within the Village Reserve Lines (VRLs), and include existing and future water demand. The urban areas, which include all areas where water usage has been reported, are serviced by cities, Community Services Districts (CSD), County Service Areas (CSA), or other water purveyors. The Carollo consulting team, reviewed the UWMP's and WSMP's prepared by these water purveyors and provided a summary of the available existing and future urban water demand and supply presented in these documents.

The WSMP's and UWMP's describe existing use and future demand in various units such as gpcd (gallons per capita per day), AFY, or average day demand. For purposes of this analysis, the annual urban water demand is presented in AFY. The urban water demand for individual areas in the County are associated with an ArcGIS® layer that includes the existing and future urban demand. The range of future demand represents different development and conservation scenarios.

Urban Water Demand by WPA

Table 2 summarizes the urban water demand for WPAs. WPAs 8, 9, 10, 11, and 15 do not have urban demand because there are no large population centers in these WPAs. The urban water demand is discussed in detail in an Appendix to the MWP.

TABLE 2
URBAN WATER DEMAND BY WATER PLANNING AREA (WPA) [a]

WPA #	WPA Name	Existing (AFY)	Minimum Future (AFY)	Maximum Future (AFY)
1	San Simeon	108	213	224
2	Cambria	815	987	1,009
3	Cayucos	432	609	641
4	Morro Bay	3,112	3,460	3,532
5	Los Osos	2,043	2,727	2,870
6	San Luis Obispo/Avila	7,871	10,787	11,355
7	South Coast	410	458	482
	NCMA	8,702	10,518	11,232
	NMMA	6,600	11,984	11,984
12	Santa Margarita	1,819	5,881	6,190
13	Atascadero/Templeton	8,538	9,359	9,852
14	Salinas/Estrella	8,126	11,634	14,543
16	Nacimiento	619	987	1,039
Total		**49,195**	**69,604**	**74,953**

a WPAs 8,9, 10, 11, and 15, as well as SMVMA in WPA 7, do not have any urban water demand

North Coast Sub-Region

The North Coast Sub-Region includes WPA 1 through 6. The urban demand for WPA 1, San Simeon, includes the San Simeon CSD existing demand of 108 AFY and projected future demand of 213 to 224 AFY. The lower projected future water demand is based on an additional 5 percent reduction due to conservation. The urban demand for WPA 2 , Cambria, includes the Cambria CSD existing water demand of 815 AFY and projected future demand of 987 to 1,009 AFY. Cambria has achieved significant conservation and projects. In the future they could have an additional 2 percent reduction. The urban demand for WPA 3 includes the Cayucos Area Water Organization existing water demand of 432 AFY and projected future demand of 609 to 641 AFY. The lower projected future water demand is based on an additional 5 percent reduction due to conservation. The urban demand for WPA 4, Morro Bay, includes the Chorro Valley Water System and City of Morro Bay. The Chorro Valley Water System includes the California Men's Colony, Camp San Luis Obispo, and Cuesta College. The existing urban demand is 3,112 and the project future demand ranges from 3,460 to 3,532. The lower projected future water demand is based on an additional 2 percent reduction due to conservation. The existing urban demand in WPA 5, Los Osos, is 2,043 AFY and future projected demand ranges from 2,727 to 2,870 AFY. The lower projected future water demand is based on an additional 5 percent reduction due to conservation. The existing urban water demand for WPA 6, San Luis Obispo/Avila, is 7,871 AFY and future water demand ranges from 10,787 to 11,335. The lower projected future water demand is based on an additional 5 percent reduction due to conservation.

South Coast Sub-Region

The South Coast Sub-Region includes WPA 7 through 9. There is no urban water demand in WPA 8 and 9. WPA 7 includes the Northern Cities Management Area (NCMA), Nipomo Mesa Management Area (NMMA), and the northern portion of the Santa Maria Valley Management Area (SMVMA), as well as other outlying areas. The total urban existing demand for the entire water planning area is 15,712 AFY and future project demand ranges from 22,960 to 23,698 AFY. The lower projected future water demand is based on an overall 3 percent reduction due to conservation. The conservation includes 6 percent additional conservation for the NCMA, no additional conservation for the NMMA, and 5 percent additional conservation for the urban areas outside of the management areas within WPA 7. SMVMA within San Luis Obispo County does not include any urban water demand.

Inland Sub-Region

The inland sub-region includes WPA 10 through 16. WPAs 10, 11, and 15 have urban demand. The existing urban water demand for Santa Margarita Water Planning Area, WPA 12, is 1,819 AFY and future ranges from 5,881 to 6,190 AFY. The lower projected future water demand is based on an additional 5 percent reduction due to conservation. The existing urban water demand for WPA 13, Atascadero/Templeton, is 8,538 AFY and projected future demand ranges from 9,359 to 9,852 AFY. The lower projected future water demand is based on an additional 5 percent reduction due to conservation. The existing urban water demand for WPA 14, Salinas/Estrella, is 8,126 AFY and projected future ranges from 11,634 to 14,543. The lower projected future water demand is based on an additional 20 percent reduction due to conservation. The existing urban water demand for WPA 16, Nacimiento, is approximately 619 AFY and projected future ranges from approximately 987 to 1,039 AFY. The lower projected future water demand is based on an additional 5 percent reduction due to conservation.

Agricultural Water Demand

Definitions

Agricultural water demand refers to the annual applied water in all agricultural areas in the County. The following definitions are related to agricultural water demand:

- *Annual crop-specific applied water*: The annual crop-specific applied water represents the quantity of applied irrigation water per year (AF/Ac/Yr). For San Luis Obispo County, the crop-specific applied water is primarily a function of crop evapotranspiration (Etc), effective rainfall (ER), leaching requirement (LR), irrigation efficiency (IE), and frost protection (FP).

- *Eto*: The reference evapotranspiration (Eto) represents the approximate theoretical water use of a well watered, cool-seasoned grass, 4 – 6 inches tall, under full cover. This varies with changing weather conditions throughout the County. The Eto is generally reported in inches/month or inches/year.

- *Kc*: The crop coefficient (Kc) refers to a dimensionless number, specific to a particular crop, which is related to the Eto of grass (1.0). Kc is used to estimate plant water use for a particular plant in a particular region.

- *Etc*: The crop evapotranspiration (Etc) is estimated by multiplying Eto and Kc. Etc is the quantity (depth) of water transpired by plants, retained in plant tissue, and evaporated from adjacent soil surfaces during a specific time. The Etc is generally reported in inches/month or inches/year.

- *ER*: The effective rainfall (ER) is the amount of rain used by crops and is influenced by a variety of factors including frequency, intensity, and total amount of rainfall; percentage of ground cover, rate of evapotranspiration, and rooting depth of the crop; and soil water holding capacity, infiltration rate, and moisture at the time of rainfall. The ER is generally reported in inches/month or inches/year.

- *FP*: Frost protection (FP) refers to the amount of water used to protect plants from frost. The FP is based on the approximate number of nights per year, hours per night, and applied water flow rate for crops which are prone to damage. For this analysis, the crop-specific FP is reported in acre-foot per acre per year. ESA contacted UC Farm Advisors to establish the FP.

- *LR*: Leaching requirement (LR) refers to the amount of extra irrigation water necessary to remove salts from the soils. For this analysis, the LR is reported in percent of irrigated water. ESA contacted UC Farm Advisors to establish the LR.

- *IE*: Irrigation efficiency (IE) represents the percentage of irrigation water beneficially used vs. total irrigation water applied. ESA contacted a CRCD Irrigation Specialist to establish the IE.

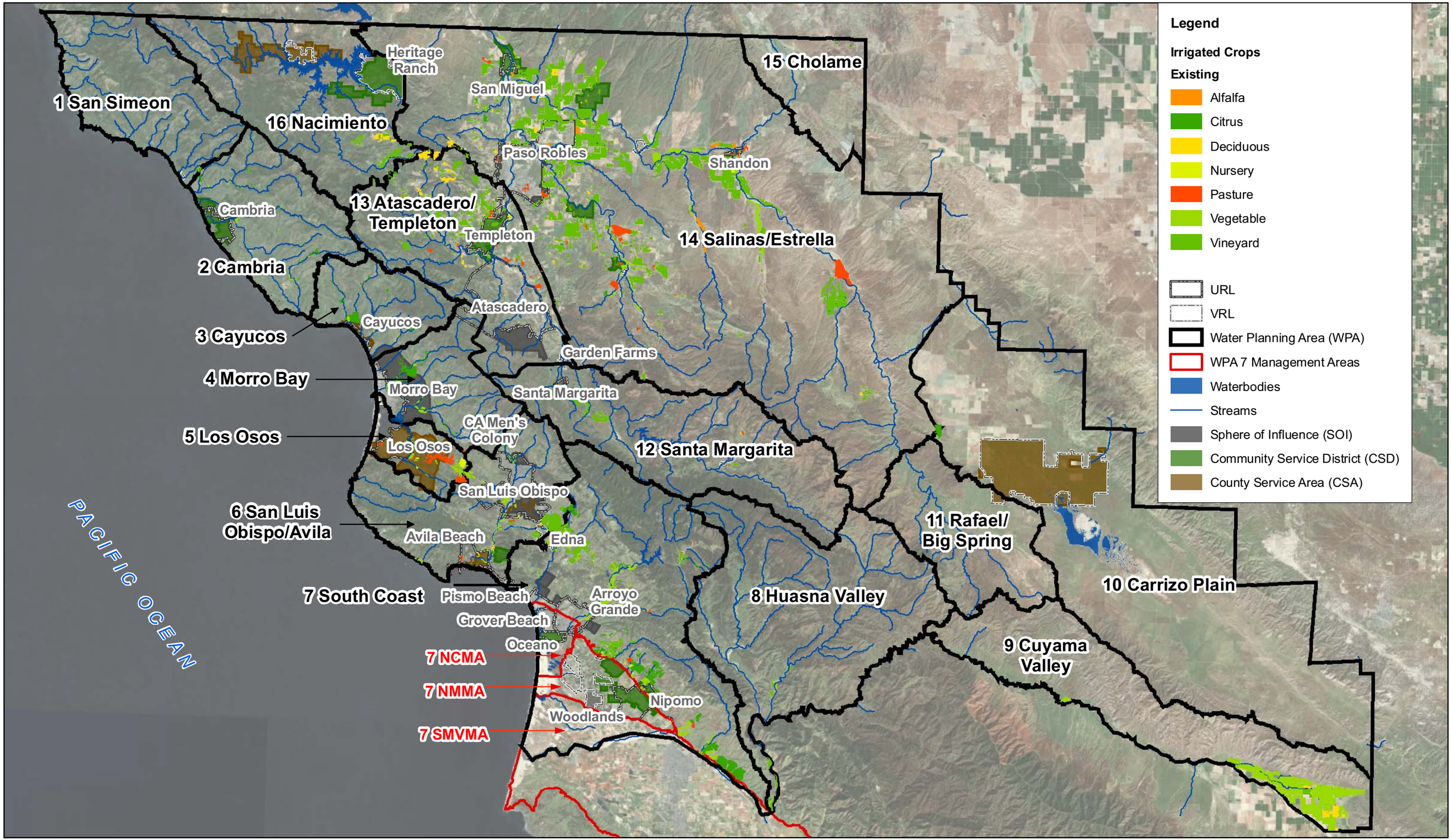
Sources

The Agriculture/Crop ArcGIS® layer for the County from August 2008 was used to determine existing agricultural acreage for each crop group. This layer is updated yearly with information from the pesticide use records obtained by the San Luis Obispo Department of Agriculture. The Agricultural Commissioner, Mike Isensee, has stated that the pesticide use records are forecasts and are approximately 80 percent accurate (Isensee, 2009a). The number of crop rotations varies and is not identified in the Agriculture/Crop ArcGIS® layer. The majority of irrigated vegetables are rotated numerous times throughout the year. Many of the coastal areas with available water may have 2, 3, or 4 crops planted in a particular year (Isensee, 2009c).

The California Irrigation Management Information System (CIMIS) and University of California Cooperative Extension Leaflets 21426 to 21428 data were used as reference evapotranspiration (ETo) and crop coefficients (Kc) for areas where data were available (CIMIS, 2009; Snyder et al., 1987, 1989a, 1989b). The rainfall data utilized is from SLO County gages, SLO County Hydrology Report (County, 2005), and County Flood Control and Water Conservation District maps (County, 2009). ESA contacted two UC Farm Advisors (Mark Battany and Mark Gaskell) in San Luis Obispo County and obtained information on frost protection and leaching requirements. Irrigation efficiency information was obtained from a Cachuma Resource Conservation District (CRCD) Irrigation Specialist (Kevin Peterson), as well as from Ms. Kris O'Connor, the Central Coast Vineyard Team (CCVT) Executive Director. Additionally, ESA used DWR estimates of the quantity of water applied to a specific crop per unit area (DWR, 2009a).

Method/Assumptions: Existing Agricultural Demand

The agricultural crop ArcGIS® layer includes approximately 200 classifications of commodities. This included approximately 86,000 acres of rangeland and 42,000 acres of uncultivated agriculture. For purposes of this analysis, the irrigated commodities were categorized into seven groups (**Table 3**). Avocados and citrus are included in the same crop group to be consistent with DWR crop groups (DWR, 2001) and annual agricultural water use monitoring by Gene Melschau, a Nipomo farmer (Melschau, 2009). Although the groups are based on commodities that may have similar water requirements, the actual water usage will vary based on individual commodities, soil type, and number of rotations on individual parcels. Almonds are not included in the commodity (deciduous) list because they require a small amount of irrigation water (Isensee, 2009b). **Figure 2** includes the location of all irrigated crops identified in the County ArcGIS® layer from August 2008.



San Luis Obispo County Flood Control and Water Conservation District

MASTER WATER PLAN

San Luis Obispo County

Figure 2 Existing Crops in San Luis Obispo County

0 2.5 5 10 Miles

The existing acreage of irrigated crops, as reported by growers, is shown in **Table 4**. The acreage changes on a monthly or annual basis and can be readily updated in ArcGIS® and annual applied water can be recalculated.

TABLE 3
CROP GROUP AND COMMODITIES USED FOR THE AGRICULTURAL DEMAND ANALYSIS

Crop Group	Primary Commodities
Alfalfa	Alfalfa
Nursery	Christmas trees, miscellaneous nursery plants, flowers
Pasture	miscellaneous grasses, mixed pasture, sod/turf, sudangrass
Citrus	avocados, grapefruits, lemons, oranges, olives, kiwis, pomegranates
Deciduous	apples, apricots, berries, peaches, nectarines, plums, figs, pistachios, persimmons, pears, quince, strawberries
Vegetables	artichokes, beans, miscellaneous vegetables, mushrooms, onions, peas, peppers, tomatoes
Vineyard	wine grapes, table grapes

TABLE 4
EXISTING IRRIGATED CROP ACREAGE DETERMINED IN GIS[a]

WPA #	WPA Name	Alfalfa (ac)	Citrus (ac)	Deciduous (ac)	Nursery (ac)	Pasture (ac)	Vegetable (ac)	Vineyard (ac)	Total (ac)
1	San Simeon		19					64	83
2	Cambria		343	26	2		188	45	603
3	Cayucos		345				107	5	456
4	Morro Bay		672		0	35	497	76	1,281
5	Los Osos			4	104	505	903	1	1,515
6	San Luis Obispo/Avila		219	182	40	209	881	538	2,070
7[b]	South Coast		4,018	24	208	530	3,231	3,198	11,210
8	Huasna Valley		19	5			160	472	656
9	Cuyama Valley			642			9,083	211	9,936
10	Carrizo Plain		250						250
12	Santa Margarita	15		7		55		974	1,051
13	Atascadero/Templeton		32	712	80	589	17	3,434	4,864
14	Salinas/Estrella	800	319	655	76	1,446	2,098	27,424	32,818
15	Cholame Valley		26						26
16	Nacimiento		45	780		10		974	1,809
	Total	**815**	**6,307**	**3,037**	**510**	**3,377**	**17,166**	**37,416**	**68,629**

[a] Acreages were determined by aggregating County Crops ArcGIS® (2008) data, which is based on the pesticide use records, and crops identified in the County Land Use ArcGIS® (2009) data. These values are aggregated in a database file exported from ArcGIS® and summarized in a pivot table. The County Crops ArcGIS® data does not include any irrigated crop acreage in WPA 11.

[b] The agricultural acreage determined in GIS for WPA 7 only includes areas outside of the NCMA, NMMA, and SMVMA. The amount of irrigated acreage for these management areas is approximately 1,600 acres for NCMA (Todd Engineers, 2009), 2,600 acres for NMMA (NMMA, 2009), and 10,500 acres for SMVMA (Luhdorff and Scalmanini, 2009). 99.9 percent of strawberries in the County are located in these three areas.

ESA calculated the crop-specific applied water for these crop groups by utilizing information on crop evapotranspiration, contribution from rain or shallow water table, leaching requirements, irrigation efficiency, and frost protection. The following equation was used to calculate the annual crop-specific applied water (AF/Ac/Yr) for each of the water planning areas:

$$\text{Annual Crop - Specific Applied Water (AF/Ac/Yr)} = \frac{\text{ETc} - \text{ER}}{(1 - \text{LR}) \text{ x IE}} + \text{FP}$$

This formula was modified from a general formula for irrigation water requirements, which was established in 1997 (Burt, 1997). A detailed discussion and summary tables of each of the parameters in the above equation is presented in **Appendix A**. The annual crop-specific applied water is multiplied by crop acreage to determine an agricultural water demand for each crop group (AFY).

Reference Crop Evapotranspiration (Eto). Crop evapotranspiration for four CIMIS weather stations in San Luis Obispo County and in Kern County (to the east) was used (CIMIS, 2009). The CIMIS stations in San Luis Obispo County include two in San Luis Obispo, one in Atascadero, and one in Nipomo. Additional Eto monthly averages were obtained from the Reference Eto zone maps (DWR, 1999), University of California Bulletin 1922 (University of California, 1987), and University of California Cooperative Extension Leaflet 21426 (Snyder et al., 1987).

Crop coefficient (Kc). The crops in San Luis Obispo County were assigned crop coefficients based on the crop type and location. These crops include alfalfa, nursery, irrigated pasture, citrus, deciduous, vegetable, and vineyard. ESA has developed spreadsheets and ArcGIS® linkage so these numbers can be easily updated with new crop coefficients and crop evapotranspiration.

Crop Evapotranspiration (Etc). Crop evapotranspiration was calculated by multiplying the Eto by the Kc for each agricultural crop group and WPA.

Effective Rainfall (ER). The effective rainfall was calculated for each area by utilizing historical monthly precipitation in San Luis Obispo County and effective precipitation based on crop group.

Frost Protection (FP). The sprinkler frost protection water requirement was estimated for grapes (throughout the County), strawberries (WPA 7 and 8), and blueberries (WPA 2, 7, and 14). For vineyards, the frost threat occurs from March to April in San Luis Obispo County. For strawberries in San Luis Obispo County, primarily in WPA 7, the frost threat occurs from January to March. Sprinkler frost protection requires a large amount of water, which may be higher than a typical groundwater well can produce (Battany, 2009). Therefore, growers that use sprinkler frost protection will generally have large reservoirs on site or nearby. The frost protection in the County is approximately 0.50 AF/Ac/Yr for vineyards throughout the County (San Luis Obispo County, 1998), because many of the vineyards do not use frost protection ESA has used a value of 0.25 AF/Ac/Yr. The frost protection value used for strawberries and blueberries, classified as deciduous, is 0.4 AF/Ac/Yr (County, 1998). The vast majority of strawberries (99.9 percent) are located in WPA 7 management areas (i.e. NCMA, NMMA, and SMVMA).

Leaching Requirements (LR). Leaching requirements, the amount of over watering necessary to remove salts from the soil, were assumed to be satisfied by rainfall in the coastal areas. ESA assumed that the leaching requirements for inland areas varied from 5 percent to 16 percent for existing conditions and 7 percent to 18 percent for future conditions (Fugro and Cleath, 2002). Mark Gaskell, UC Farm Advisor, stated that strawberries may have a leaching requirement of 10 to 20 percent (Gaskell, 2009). Therefore, ESA used a leaching requirement of 11 percent for existing demand and 13 percent for future demand in WPA 7. Future leaching requirements may be greater, based on a build-up of salts in the soil due to deficient winter rains (Battany, 2008; Gaskell, 2009).

Irrigation Efficiency (IE). Irrigation efficiencies were calculated by utilizing irrigation distribution uniformity and losses provided by the San Luis Obispo County/Santa Barbara County Cachuma Resource Conservation District (CRCD), San Luis Obispo County Coastal Resources Conservation District, vineyard owners, and recent studies. Additionally, ESA incorporated input from a CRCD Irrigation Specialist on existing and future irrigation efficiencies (Peterson, 2009a, 2009b).

Method/Assumptions: Future Agricultural Demand

Similar methods and equations were used to calculate the future irrigation water requirements. The calculation of future agricultural demand is different from existing use due to changes in cropping patterns, weather patterns, and irrigation methods. Over the past 20 years, irrigation efficiencies have improved substantially. Although predicting future agricultural demand is very difficult, according to the Agricultural Commissioner and a CRCD Irrigation Specialist, irrigation efficiencies are likely to continue to improve due to site specific monitoring of soil water availability and crop needs, planting of root stock that is more drought tolerate, or modification of irrigation techniques based upon ongoing research (Isensee, 2009c; Peterson, 2009b) Growers may also face economic pressure due to increased electricity costs if groundwater levels decline, or may have economic incentives for the development of higher water efficiencies (Isensee, 2009c). Therefore, ESA assumed higher irrigation efficiencies for projected future agricultural demand than in existing demand calculations. More details about how the irrigation efficiencies were determined are included in Appendix A.

Based on recent trends in agriculture, much of the additional projected future irrigated land could be converted to vineyards. For purposes of this analysis, ESA assumed that the 6,000 acres of hay and oats identified in the 2008 ArcGIS® crop layer would be converted to vineyards. The County has approximately 70,000 acres of farmland enrolled in the Federal Conservation Reserve Program (CRP) (USDA, 2009). Many of the existing CRP contracts will expire in the next 10 years. If there is sufficient water available, much of this farmland could enter into irrigated production (Isensee, 2009c). ESA has estimated future irrigated crop acreage by adding existing irrigated crop acreage plus inactive irrigated crop acreage and approximately 6,000 acres of future vineyards (converted from existing oat and hay acreage). The total future irrigated crop acreage, including WPA 7 management areas, was 95,038 acres compared to existing crop acreage of 83,329 acres. This analysis does not account for annual rotation from fallow to cultivated land. Projected future irrigated acreage is presented in **Table 5**.

Agricultural Water Demand by WPA

Table 6 includes a summary of the range of existing annual applied water (AFY) by WPA. The range is based on different rainfall and irrigation efficiencies. **Table 7** includes a summary of the projected future annual applied water (AFY) by WPA. All agricultural water demands have been rounded to the 10's.

San Simeon Water Planning Area (WPA 1)

The existing annual applied water for WPA 1 is approximately 70 AFY. The existing crops in this area include citrus and vineyards. The projected future annual applied water for WPA 1 ranges from approximately 10 to 60 AFY. The projected future agricultural demand is less than existing, due to increased irrigation efficiencies and no additional crops in this area.

TABLE 5
PROJECTED FUTURE IRRIGATED CROP ACREAGE DETERMINED IN GIS[a]

WPA #	WPA Name	Alfalfa (ac)	Citrus (ac)	Deciduous (ac)	Nursery (ac)	Pasture (ac)	Vegetable (ac)	Vineyard (ac)	Total (ac)
1	San Simeon		19					64	83
2	Cambria		409	28	2		395	457	1,291
3	Cayucos		477				108	13	598
4	Morro Bay		722		0	35	527	96	1,380
5	Los Osos		21	4	104	505	995	1	1,628
6	San Luis Obispo/Avila		224	182	40	209	920	542	2,117
7[b]	South Coast		4,048	44	209	703	3,378	3,740	12,122
8	Huasna Valley		19	5	4	97	160	670	954
9	Cuyama Valley			642			9,501	211	10,354
10	Carrizo Plain		251	1			3		255
12	Santa Margarita	15	4	9		95		1,284	1,406
13	Atascadero/Templeton		54	778	80	814	47	4,774	6,547
14	Salinas/Estrella	800	381	879	78	1,886	2,121	32,086	38,232
15	Cholame Valley		26						26
16	Nacimiento		48	846		10		2,441	3,345
	Total	**815**	**6,703**	**3,418**	**517**	**4,352**	**18,154**	**46,380**	**80,338**

[a] The agricultural acreages were determined by aggregating County Crops ArcGIS® (2008) data, which is based on the pesticide use records, and crops identified in the County Land Use ArcGIS® (2009) data. These crop acreages are aggregated in a database file exported from ArcGIS® and inputted into spreadsheets. The County Crops ArcGIS® data does not include any irrigated crop acreage in WPA 11.

[b] The agricultural acreage determined in GIS for WPA 7 only includes areas outside of the NCMA, NMMA, and SMVMA. The amount of irrigated acreage for these management areas is approximately 1,600 acres for NCMA (Todd Engineers, 2009), 2,600 acres for NMMA (NMMA, 2009), and 10,500 acres for SMVMA (Luhdorff and Scalmanini, 2009). 99.9 percent of strawberries in the County are located in these three areas.

TABLE 6
EXISTING AGRICULTURAL WATER DEMAND BY WPA (AFY)[a]

Water Planning Area		low demand (AFY)	medium demand (AFY)	high demand (AFY)
1	San Simeon	40	70	90
2	Cambria	440	640	850
3	Cayucos	370	520	670
4	Morro Bay	1,670	2,060	2,440
5	Los Osos	2,750	3,290	3,830
6	San Luis Obispo/Avila	2,900	3,610	4,320
7[b]	South Coast	16,250	19,920	23,580
8	Huasna Valley	1,300	1,550	1,800
9	Cuyama Valley	25,110	28,870	32,630
10	Carrizo Plain	690	800	910
12	Santa Margarita	1,390	1,770	2,160
13	Atascadero/Templeton	8,570	10,620	12,670
14	Salinas/Estrella	55,480	67,610	79,730
15	Cholame Valley	70	80	90
16	Nacimiento	3,120	3,860	4,610
	Total	**120,150**	**145,270**	**170,380**

[a] All agricultural demand values have been rounded to the 10's. The County Crops ArcGIS® data does not include any irrigated crop acreage in WPA 11.

[b] The agricultural demand for WPA 7 in this table only includes areas outside of the NCMA, NMMA, and SMVMA.

TABLE 7
PROJECTED FUTURE AGRICULTURAL WATER DEMAND BY WPA (AFY)[a]

Water Planning Area		low demand (AFY)	medium demand (AFY)	high demand (AFY)
1	San Simeon	10	40	60
2	Cambria	740	1,110	1,490
3	Cayucos	430	620	800
4	Morro Bay	1,690	2,070	2,440
5	Los Osos	2,750	3,260	3,770
6	San Luis Obispo/Avila	2,810	3,470	4,120
7[b]	South Coast	16,610	20,220	23,830
8	Huasna Valley	2,060	2,440	2,820
9	Cuyama Valley	25,240	28,820	32,410
10	Carrizo Plain	680	780	890
12	Santa Margarita	1,720	2,200	2,680
13	Atascadero/Templeton	9,740	12,170	14,600
14	Salinas/Estrella	60,740	73,780	86,820
15	Cholame Valley	60	70	80
16	Nacimiento	4,740	5,930	7,120
	Total	**130,020**	**156,980**	**183,930**

[a] All projected future agricultural demand values have been rounded to the 10's. The County Crops ArcGIS® data does not include any irrigated crop acreage in WPA 11.

[b] The agricultural water demand for WPA 7 only includes areas outside of the NCMA, NMMA, and SMVMA.

Cambria Water Planning Area (WPA 2)

The existing annual applied water for WPA 2 is approximately 640 AFY. The existing crops in this area include citrus, deciduous, vegetable, and vineyards. The projected future annual applied water for WPA 2 ranges from approximately 740 to 1,490 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of all of the existing crop groups, especially vegetables and vineyards.

Cayucos Water Planning Area (WPA 3)

The existing annual applied water for WPA 3 is approximately 520 AFY. The existing crops in this area include citrus, vegetables, and vineyards. The projected future annual applied water for WPA 3 ranges from approximately 430 to 800 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, vegetables, and vineyards.

Morro Bay Water Planning Area (WPA 4)

The existing annual applied water for WPA 4 is approximately 2,060 AFY. The existing crops in this area include citrus, irrigated pasture, vegetable, and vineyards. The projected future annual applied water for WPA 4 ranges from approximately 1,690 to 2,440 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, vegetables, and vineyards.

Los Osos Water Planning Area (WPA 5)

The existing annual applied water for WPA 5 is approximately 3,290 AFY. The existing crops in this area include deciduous, nursery, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 5

ranges from approximately 2,750 to 3,770 AFY. The projected future agricultural demand is less than existing, due to increased irrigation efficiencies.

San Luis Obispo/Avila Water Planning Area (WPA 6)

The existing annual applied water for WPA 6 is approximately 3,610 AFY. The existing crops in this area include deciduous, nursery, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 6 ranges from approximately 2,810 to 4,120 AFY. The projected future agricultural demand is less than existing, due to increased irrigation efficiencies.

South Coast Water Planning Area (WPA 7)

Outlying Areas

The existing annual applied water in the tables above includes the demand for the areas in WPA 7 that are located outside of the NMMA, NCMA, and SMVMA boundaries. The existing annual applied water for this part of WPA 7 is approximately 19,920 AFY. The projected future demand ranges from 16,610 to 23,830 AFY.

Northern Cities Management Area (NCMA)

In 2008, the irrigated crops consisted of approximately 4 acres of nursery crops and approximately 1,596 acres of crops such as broccoli, onions, and strawberries. The total existing annual applied water for irrigated crops in the NCMA, part of WPA 7, is approximately 2,590 AFY (Todd Engineers, 2009). The future agricultural water demand in NCMA is not expected to change significantly from existing water usage (Todd Engineers, 2009).

Nipomo Mesa Management Area (NMMA)

In 2008, the irrigated crops in NMMA consisted of 3 acres deciduous, 3 acres pasture, 424 acres vegetable, 264 acres of avocado and lemon, 1,176 acres of strawberries, and 261 acres of nurseries (NMMA, 2009). The total existing annual applied water for irrigated crops in NMMA is approximately 4,300 AFY (NMMA, 2009). The future agricultural water demand in NMMA is not expected to change significantly from existing water usage.

Santa Maria Valley Management Area (SMVMA)

In 2008, the crops within the San Luis Obispo portion of SMVMA consisted of approximately 9,649 acres of vegetables, 798 acres of strawberries, and 63 acres of nurseries. The crop acreage was calculated from the San Luis Obispo County Crops ArcGIS layer. The 2008 SMVMA Annual Report established annual applied crop water duties for these crop groups of 2.50, 1.55, and 2.1 AF/Ac/Yr, respectively (Luhdorff and Scalmanini, 2009). Based on the applied water duties established in the SMVMA 2008 Annual Report and the acreage determined by the County Crops ArcGIS layer, the existing agricultural water demand would be approximately 25,540 AFY. The future agricultural water demand in SMVMA is not expected to change significantly from existing water usage.

Huasna Valley Water Planning Area (WPA 8)

The existing annual applied water for WPA 8 is approximately 1,550 AFY. The existing crops in this area include citrus, deciduous, vegetables, and vineyards. The projected future annual applied water for WPA 8 ranges from approximately 2,060 to 2,820 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of nursery, pasture, and vineyards.

Cuyama Valley Water Planning Area (WPA 9)

The existing annual applied water for WPA 9 is approximately 28,870 AFY. The existing crops in this area include deciduous, vegetables, and vineyards. The projected future annual applied water for WPA 9 ranges from approximately 25,320 to 32,410 AFY. The projected future agricultural demand is less than existing, due to increased irrigation efficiencies.

Carrizo Plain Water Planning Area (WPA 10)

The existing annual applied water for WPA 10 is approximately 800 AFY. The existing crops in this area are primarily citrus crops. The projected future annual applied water for WPA 10 ranges from approximately 680 to 890 AFY. The projected future agricultural demand is less than existing, due to increased irrigation efficiencies.

Santa Margarita Water Planning Area (WPA 12)

The existing annual applied water for WPA 12 is approximately 1,770 AFY. The existing crops in this area include alfalfa, deciduous, pasture, and vineyards. The projected future annual applied water for WPA 12 ranges from approximately 1,720 to 2,680 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, deciduous, pasture, and vineyards.

Atascadero/Templeton Water Planning Area (WPA 13)

The existing annual applied water for WPA 13 is approximately 10,620 AFY. The existing crops in this area include citrus, deciduous, nursery, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 13 ranges from approximately 9,740 to 14,600 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of all existing crop groups.

Salinas/Estrella Water Planning Area (WPA 14)

The existing annual applied water for WPA 14 is approximately 67,610 AFY. The existing crops in this area include commodities from all crop groups. The projected future annual applied water for WPA 14 ranges from approximately 60,740 to 86,820 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, deciduous, pasture, vegetables, and vineyards.

Cholame Water Planning Area (WPA 15)

The existing annual applied water for WPA 15 is approximately 80 AFY. The existing crops in this area are primarily citrus crops. The projected future annual applied water for WPA 15 ranges from approximately 60 to 80 AFY. The projected future agricultural demand is approximately equal to the existing agricultural demand in this planning area.

Nacimiento Water Planning Area (WPA 16)

The existing annual applied water for WPA 16 is approximately 3,860 AFY. The existing crops in this area are citrus, deciduous, pasture, and vineyards. The projected future annual applied water for WPA 16 ranges from approximately 4,740 to 7,120 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, deciduous, and vineyards.

Rural Water Demand

Definitions

Rural water demand refers to water demand in unincorporated areas of the County that are not considered agricultural or urban.

Sources

The County ArcGIS® land use data, including vacant and developed properties and potential subdivisions and units, in the unincorporated areas of the County were used to calculate a rural water demand. Additional sources include information from purveyors, water management plans, and the County's *2008 Resource Management System Annual Summary Report*.

Method/Assumptions: Existing and Future Rural Demand

A water duty factor was applied to the number of dwelling units (DU) of unincorporated areas that are outside of the urban and agricultural areas. The water duty factor associated with rural demand is an estimated average annual volume of water used by a particular rural user and is represented as AFY/DU.

Due to different climates and types of water usage, the water duty factors can vary widely between region and time of year. The water duty factor varies with the number of persons in each DU, the amount of landscaping, and the climate. Coastal areas require less water than inland areas due to greater evapotranspiration in the inland areas and more precipitation in the coastal areas. The water duty factor for each area was determined by utilizing water usage data available through San Luis Obispo County, adjacent counties, and water purveyors. ESA calculated a range for existing and future rural demand in each region based on the amount of development and conservation.

ESA utilized the County Land Use ArcGIS® layer, which includes land use and potential DU per acre for all unincorporated areas of the County. The methods that the County used to prepare the land use data are described in **Appendix B**. A detailed discussion of how ESA utilized the County Land Use ArcGIS® database is included in **Appendix C**. For the rural demand analysis, ESA excluded all areas in the County that were accounted for with urban or agricultural water demand. Existing and projected future nurseries and vineyards present in the Land Use ArcGIS® layer were merged into the agriculture ArcGIS® layer and included in the agricultural demand analysis.

ESA calculated a rural water demand for each area by multiplying the number of dwelling units by a water duty factor. For future rural water demand, the potential residential demand was reduced by 25 percent to account for physical and environmental constraints on development. The 25 percent is based on a future County development of 75 percent of vacant land that is designated by the County as having development potential. In the future, this could be refined for specific planning areas. The County is developing a Countywide Rural Plan that will analyze different rural buildout scenarios. The rural demand for individual areas in the County was associated with a ArcGIS® layer, which includes the number of dwelling units, water duty factor, and calculated rural water demand for all unincorporated areas in the County that are not considered agricultural or urban. ESA utilized input from the WRAC, regional, sub-regional, and other stakeholders to develop the rural water demand methodology.

Rural Water Demand by WPA

Appendix C provides a detailed discussion of the method ESA used to calculate the existing and projected future rural water demand. **Table 8** summarizes an estimate of the existing rural demand and an estimate of the projected future rural demand for all WPAs. The number of existing dwelling units (DU) was multiplied by 0.8 AFY/DU for coastal WPAs (WPA 1-7) and 1.0 AFY/DU for inlands WPA (WPA 8-16) to estimate the existing rural residential water demand for this WPA. Rural residential water demand represents approximately 99.6 percent of the total rural demand. The number of existing rural industrial/commercial parcels, which are not served by existing water purveyors, was multiplied by a factor of 1.5 AFY/DU for all planning areas and for both existing and future industrial/commercial rural water demand. Rural industrial/commercial demand makes up approximately 0.4 percent of total rural water demand. The number of projected future DU was multiplied by 0.6 AFY/DU for coastal WPAs and 0.8 AFY/DU for inland WPAs to determine the projected future rural water demand for this WPA. **Figure 3** shows a summary of residential, commercial/industrial, and vacant parcels throughout San Luis Obispo County. According to existing County land use designations, much of the vacant rural land could be developed in the future if water and other resources were available.

TABLE 8
EXISTING AND FUTURE RURAL WATER DEMAND

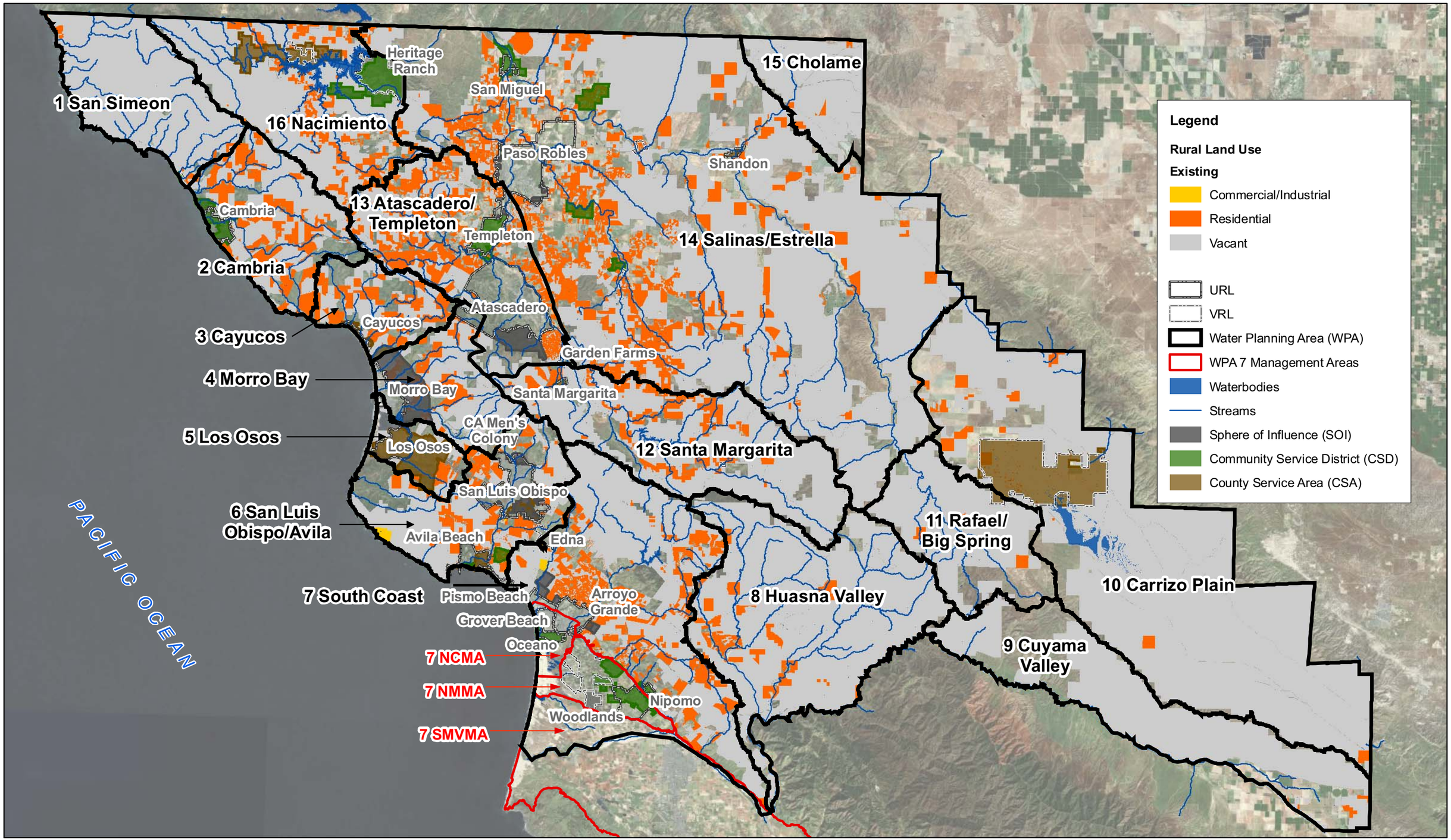
	Water Planning Area	Average Existing Rural Demand (AFY)[a]	Minimum Future Rural Demand (AFY)[b,c]	Maximum Future Rural Demand (AFY)[b]
1	San Simeon	20	50	50
2	Cambria	100	190	220
3	Cayucos	80	130	140
4	Morro Bay	120	190	220
5	Los Osos	20	20	20
6	San Luis Obispo/Avila	450	610	660
7[d]	South Coast	1,480	1,990	2,160
8	Huasna Valley	90	360	450
9	Cuyama Valley	10	80	100
10	Carrizo Plain	210	9,610	12,740
11	Rafael/Big Spring	0	470	620
12	Santa Margarita	240	450	520
13	Atascadero/Templeton	1,480	1,810	1,930
14	Salinas/Estrella	3,590	5,570	6,230
15	Cholame Valley	10	150	190
16	Nacimiento	280	730	880
	Total	**8,180**	**22,410**	**27,130**

[a] Water usage factor used for all existing rural residential units in WPA 1-7 is 0.8 AFY/DU and WPA 8-16 is 1.0 AFY/DU, for commercial/industrial areas was 1.5 AFY/DU.

[b] Water usage factor used for all future residential units in WPA 1-7 is 0.6 AFY/DU and WPA 8-16 is 0.8 AFY/DU, for commercial/industrial areas was 1.5 AFY/DU.

[c] Minimum demand represents 75 percent of potential development

[d] The rural demand for WPA 7 only includes areas outside of the NCMA, NMMA, and SMVMA.



San Luis Obispo County Flood Control and Water Conservation District

MASTER WATER PLAN

San Luis Obispo County

Figure 3 Rural Land Use in San Luis Obispo County

0 2.5 5 10 Miles

North Coast Sub-Region

The existing rural demand for San Simeon Water Planning Area, WPA 1, is approximately 20 AFY and future is approximately 50 AFY. The existing rural demand for Cambria Water Planning Area, WPA 2, is approximately 100 AFY and future is approximately 190 to 220 AFY. The existing rural demand for Cayucos Water Planning Area, WPA 3, is approximately 80 AFY and future range is from approximately 130 to 140 AFY. The existing rural demand for Morro Bay Water Planning Area, WPA 4, is approximately 120 AFY and projected future range is from 200 to 220 AFY. The existing rural demand for Los Osos Water Planning Area, WPA 5, is 20 AFY and projected future demand is approximately the same. The majority of WPA 5 is composed of agricultural and urban areas, so there are only a small number of parcels in WPA 5 where there could be additional rural development. The existing rural demand for San Luis Obispo/Avila Water Planning Area, WPA 6, is 450 AFY and projected future range is 610 to 660 AFY. The majority of existing rural parcels identified in the WPAs within the North Coast Sub-Region are classified as developed rural lands. The majority of vacant parcels in these WPAs that could be converted to rural residential in the future are vacant parcels with rural land use designations.

South Coast Water Planning Area (WPA 7)

Outlying Areas

The existing annual rural water demand in the tables above includes the demand for the areas in WPA 7 that are located outside of the NMMA, NCMA, and SMVMA boundaries. The existing demand for outlying areas in WPA 7 is 1,480 AFY and the projected demand for outlying areas in WPA 7 is 1,990 to 2,160 AFY. The majority of existing rural parcels identified in WPA 7 are classified as developed rural residential, rural suburban, or rural lands. The majority of vacant parcels in WPA 7 that could be converted to rural residential in the future are vacant parcels with rural land use designations

Northern Cities Management Area (NCMA)

In 2008, the NCMA had a rural demand of approximately 36 AFY (Todd Engineers, 2009). The NCMA has minimal rural land that could be developed. In the future, the rural water demand in this area is expected to be similar to the existing demand. Most of the increase in demand in NCMA is projected to be from urban users. The existing rural water demand will be estimated and reported annually in an NCMA report.

Nipomo Mesa Management Area (NMMA)

In 2008, the NMMA had a rural demand of approximately 1,700 AFY (NMMA, 2009). The rural water demand consisted of primarily rural residential and suburban parcels. The rural water demand in the future is expected to be similar to the existing demand. Most of the increase in water demand in NMMA is projected to be from urban users. The rural water demand will be estimated and reported annually in an NMMA report.

Santa Maria Valley Management Area (SMVMA)

The water demand in the San Luis Obispo section of SMVMA is primarily classified as agricultural demand (Luhdorff and Scalmanini, 2009). Based on the County Land Use GIS, the existing rural water demand in SMVMA is approximately 37 AFY and future demand is approximately 110 AFY. Both existing and future rural demand is less than 0.5 percent of the total demand for the SMVMA within San Luis Obispo County.

Huasna Valley Water Planning Area (WPA 8)

For the Huasna Valley Water Planning Area, the existing annual rural water demand is 90 AFY and the range of projected future demand is 360 to 450 AFY. The majority of existing rural parcels identified in WPA 8 are classified as developed rural lands. The majority of vacant parcels in WPA 8 that could be converted to rural residential in the future are vacant parcels with rural land use designations.

Cuyama Valley Water Planning Area (WPA 9)

The existing annual rural water demand is 10 AFY and the range of projected future demand is 80 to 100 AFY. The majority of existing rural parcels identified in WPA 9 are classified as developed rural lands. The majority of vacant parcels in WPA 9 that could be converted to rural residential in the future are vacant parcels with rural land use designations

Inland Sub-Region

The estimated rural demand for the Carrizo Plain, WPA 10, is 210 AFY and future demand ranges from 9,610 to 12,740 AFY. The majority of existing rural parcels identified in WPA 10 are classified as developed rural lands. According to existing zoning, it is possible that Carrizo Plain could have extensive residential development. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors.

There is no existing rural demand for WPA 11, Rafael/Big Spring, but in the future, if water is available and development occurs, there could be from approximately 470 to 620 AFY. The existing rural demand for WPA 12 is approximately 240 AFY and future demand ranges from approximately 450 to 520 AFY. The existing rural demand for WPA 13, Atascadero/Templeton, is approximately 1,480 AFY and future demand ranges from 1,810 to 1,930 AFY. The existing rural demand for WPA 14, Salinas/Estrella, is approximately 3,590 AFY and future demand ranges from 5,570 to 6,230 AFY. The existing rural demand for WPA 15, Cholame, is approximately 10 AFY and future demand ranges from 150 to 190 AFY. The existing rural demand for WPA 16 is approximately 280 AFY and future demand ranges from 730 to 880 AFY. The majority of existing rural parcels identified in the Inland Sub-Region are classified as developed rural lands. The majority of vacant parcels in these WPAs that could be converted to rural residential in the future are vacant parcels with rural land use designations

Environmental Water Demand

Definitions

Environmental water demand refers to the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes.

Sources

There are six active USGS streamflow gages and 68 inactive USGS streamflow gages in San Luis Obispo County (USGS, 2009). Information on location, site details, drainage, and available data was obtained for all United States Geological Survey (USGS) sites and imported into ArcGIS®. ESA obtained similar information from Sylas Cranor in the San Luis Obispo Water Resources Department for all 16 active gages and inactive gages and imported available information into ArcGIS®.

Method/Assumptions: Environmental Demand

A detailed discussion of the methods for determining the environmental demand is included in **Appendix D**. ESA quantified environmental water demands for areas where data were available and unimpaired runoff data could be obtained, calculated, or estimated. ESA utilized USGS and County existing stream gage data and obtained the critical stream flow data. Unimpaired runoff estimates were calculated by developing regional, multiple regression relationships that predict runoff at an ungaged, or partially gaged, location as a function of runoff at a gaged location. Once the estimated unimpaired runoff has been established, ESA used the median annual discharge methodology to calculate an environmental water demand (Hatfield and Bruce, 2000). ESA selected this method for the environmental demand analysis based on target species, data availability, input from the WRAC and other stakeholders, as well as time and budget constraints.

The DWR has identified over 1,000 water rights applications and permits for San Luis Obispo County (DWR, 2009b). For purposes of this analysis, ESA presents the unimpaired mean annual discharge and environmental water demand without including an analysis of the 1,000 diversion rights in the County. However, ESA includes some of the established instream flow requirements. In order to obtain a better understanding of how much surface water is available for aquatic life, the County would need to identify and quantify all diversion rights and instream flow requirements in the watershed.

Environmental Water Demand by WPA

A detailed discussion of the results of the environmental demand analysis is included in Appendix D. The mean annual discharge and environmental water demand estimates are shown in **Table 9**.

San Simeon Water Planning Area (WPA 1)

The total unimpaired mean annual discharge in WPA 1 is approximately 104,490 AFY and environmental water demand is approximately 72,980 AFY. WPA 1 was divided into eight sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for each of these areas. Some of the creeks included in these sub-watersheds include San Carpoforo, Honda Arroyo, Arroyo de la Cruz, Arroyo de la Laguna, Arroyo del Osos, Arroyo del Corral, Arroyo Laguna, and Pico Creek.

TABLE 9
MEAN ANNUAL DISCHARGE AND ENVIRONMENTAL WATER DEMAND ESTIMATES

WPA #[a]	WPA Name	Estimated Unimpaired Mean Annual Discharge (AFY)	Environmental Water Demand (AFY)
1	San Simeon	104,490	72,980
2	Cambria	87,050	51,460
3	Cayucos	33,340	26,160
4	Morro Bay	43,430	27,880
5	Los Osos	8,200	7,040
6	SLO/Avila	45,820	33,030
7	South Coast	49,100	32,960
8	Huasna Valley	34,220	25,020
12	Santa Margarita	46,630	32,850
13	Atascadero/Templeton	74,090	41,010
16	Nacimiento	251,120[b]	108,390[b]

[a] The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

[b] Estimates for WPA16 environmental water demand include the watershed area for the Nacimiento River Index-station (162 square miles); though the Index-station is within WPA 16, most of the watershed area is not.

Cambria Water Planning Area (WPA 2)

The total unimpaired mean annual discharge in WPA 2 is approximately 87,050 AFY and environmental water demand is approximately 51,460 AFY. WPA 2 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for each of these areas. Creeks in these sub-watersheds include San Simeon, Santa Rosa, and Villa Creek.

Cayucos Water Planning Area (WPA 3)

For WPA 3, the total unimpaired mean annual discharge is approximately 33,340 AFY and environmental water demand is approximately 26,160 AFY. WPA 3 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for each of these areas. Creeks in these sub-watersheds include Cayucos and Toro Creek.

Morro Bay Water Planning Area (WPA 4)

The unimpaired mean annual discharge for WPA 4 is approximately 43,430 AFY and environmental water demand is approximately 27,880 AFY. WPA 4 was divided into two sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. Creeks in these sub-watersheds include Morro and Chorro Creek.

Los Osos Water Planning Area (WPA 5)

The unimpaired mean annual discharge for WPA 5 is approximately 8,200 AFY and environmental water demand is approximately 7,040 AFY. The analysis for WPA 5 analyzed the area as one watershed that includes Los Osos Creek and an area of approximately 23 square miles.

San Luis Obispo/Avila Water Planning Area (WPA 6)

The unimpaired mean annual discharge for WPA 6 is approximately 45,820 AFY and environmental water demand is approximately 33,030 AFY. WPA 6 was divided into four sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The largest creek in these sub-watersheds is San Luis Obispo Creek. San Luis Obispo Creek has an instream flow requirement of a minimum daily average of discharge 2.5 cubic feet per second (cfs), which is equivalent to approximately 1,810 AFY (NOAA, 2005).

South Coast Water Planning Area (WPA 7)

The unimpaired mean annual discharge for WPA 7, inclusive of the water management areas, is approximately 49,100 AFY and environmental water demand of 32,960 AFY. WPA 7 was divided into five sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. Creeks in these sub-watersheds include Pismo and Arroyo Grande Creek. The Arroyo Grande Creek below Lopez Dam has instream flow requirements that vary from less than 3 cfs to 20 cfs (2,170 AFY to 14,480) based on time of year and amount of water in the reservoir (Stetson Engineers, 2004)

Huasna Valley Water Planning Area (WPA 8)

The unimpaired mean annual discharge for WPA 8 inclusive of the water management areas is approximately 34,220 AFY and environmental water demand of 25,020 AFY. WPA 8 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. Some of the creeks in these sub-watersheds included Huasna River and Alamo Creek.

Santa Margarita Water Planning Area (WPA 12)

The unimpaired mean annual discharge for WPA 12 inclusive of the water management areas is approximately 46,630 AFY and environmental water demand of 32,850 AFY. WPA 12 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The Salinas River is the major river in these sub-watersheds.

Atascadero/Templeton Water Planning Area (WPA 13)

The unimpaired mean annual discharge for WPA 13 inclusive of the water management areas is approximately 74,090 AFY and environmental water demand of 41,010 AFY. WPA 13 was divided into two sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The major water bodies in these sub-watersheds include the Salinas River and Paso Robles Creek.

Nacimiento Water Planning Area (WPA 16)

The unimpaired mean annual discharge for WPA 16 inclusive of the water management areas is approximately 251,124 AFY and environmental water demand of 108,390 AFY. WPA 16 was divided into three sub-watersheds and the unimpaired mean annual discharge and environmental water demand was calculated for these sub-watersheds. The major river in these sub-watersheds is the Nacimiento River.

Appendices

Appendix A, San Luis Obispo County Water Demand Analysis Annual Applied Water Variables, technical memorandum, ESA, prepared December 2009.

Appendix B, San Luis Obispo County ArcGIS® LU Methodology Report, San Luis Obispo County, 2009.

Appendix C, San Luis Obispo County Rural Land Use

Appendix D, SLO County MWP, Environmental Water Demand Estimates, technical memorandum, ESA, November 24, 2009.

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DRAFT memorandum

date January 7, 2010

to Courtney Howard, San Luis Obispo County; Water Resources Advisory Committee (WRAC)

from Annika Fain, ESA; Eric Zigas, ESA

subject San Luis Obispo County Annual Crop-Specific Applied Water Variables (Appendix A)

Agricultural Demand

ESA calculated the crop-specific applied water for these crop groups by utilizing information on crop evapotranspiration, effective rainfall, leaching requirements, irrigation efficiency, and frost protection. The following equation was used to calculate the annual crop-specific applied water (AF/Ac/Yr) for each of the water planning areas:

$$\text{Annual Crop - Specific Applied Water (AF/Ac/Yr)} = \frac{\text{ETc} - \text{ER}}{(1 - \text{LR}) \text{ x IE}} + \text{FP}$$

This formula was modified from a general formula for irrigation water requirements, which was established in 1997 (Burt, 1997). A detailed discussion and summary tables of each of the parameters in the above equation is presented below. **Table A1** presents a range of values for the existing annual crop-specific applied water (AF/Ac/Yr) for all crop groups and water planning area. **Table A2** presents a range of values for the projected future crop-specific applied water (AF/Ac/Yr) for all crop groups and water planning area. The annual crop-specific applied water is multiplied by crop acreage to determine an agricultural water demand (AFY). **Table A3** presents a range of values for the agricultural water demand for all crop groups and water planning area. **Table A4** presents a range of values for the agricultural water demand for all crop groups and water planning area.

Reference Crop Evapotranspiration (Eto). Crop evapotranspiration for CIMIS weather stations in San Luis Obispo County and in Kern County (to the east) was used. The CIMIS stations in San Luis Obispo County include two in San Luis Obispo, one in Atascadero, and one in Nipomo. Additionally, Blackwells Corner, in Kern County was used to estimate Eto in Eastern San Luis Obispo County. The water planning areas were grouped according to the reference crop evapotranspiration climate groups (**Table A5**). Due to substantial variability within WPA 7, ESA used an average crop evapotranspiration of Arroyo Grande and Nipomo for this area. A summary of the estimated reference crop evapotranspiration used for the analysis is shown in **Table A6**.

Crop coefficients (Kc). The crops in San Luis Obispo County were assigned crop coefficients based on the crop type and location. These crops include alfalfa, nursery, irrigated pasture, citrus, deciduous, vegetable, and

vineyard. The spreadsheet and ArcGIS® model is set-up so these numbers can be easily updated with new crop coefficients and crop evapotranspiration. The crop coefficients for this analysis are summarized in **Table A7**.

TABLE A1
EXISTING CROP-SPECIFIC APPLIED WATER (AF/AC/YR) BY CROP GROP AND WATER PLANNING AREA

WPA #	WPA Name	Alfalfa (AF/Ac/Yr)			Citrus (AF/Ac/Yr)			Deciduous (AF/Ac/Yr)			Nursery (AF/Ac/Yr)			Pasture (AF/Ac/Yr)			Vegetable (AF/Ac/Yr)[a]			Vineyard (AF/Ac/Yr)		
		Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med
1	San Simeon	1.4	2.5	2.0	0.5	1.2	0.9	1.3	2.2	1.8	0.6	1.5	1.1	1.6	2.7	2.1	1.2	1.4	1.3	0.5	1.0	0.8
2	Cambria	1.4	2.5	2.0	0.5	1.2	0.9	0.9	1.8	1.4	0.6	1.5	1.1	1.6	2.7	2.1	1.0	1.4	1.2	0.0	0.6	0.4
3	Cayucos	1.6	2.7	2.2	0.6	1.4	1.0	1.1	1.9	1.5	0.7	1.6	1.2	1.7	2.9	2.3	1.0	1.4	1.2	0.1	0.7	0.5
4	Morro Bay	2.2	3.3	2.7	1.1	1.8	1.5	1.6	2.4	2.0	1.2	2.0	1.6	2.3	3.4	2.9	1.2	1.7	1.4	0.5	1.0	0.8
5	Los Osos	2.2	3.3	2.7	1.1	1.8	1.5	1.6	2.4	2.0	1.2	2.0	1.6	2.3	3.4	2.9	1.2	1.7	1.4	0.5	1.0	0.8
6	San Luis Obispo/Avila	2.3	3.5	2.9	1.1	1.9	1.5	1.7	2.6	2.1	1.2	2.1	1.7	2.5	3.7	3.1	1.4	1.8	1.6	0.5	1.1	0.8
7	South Coast	2.7	3.9	3.3	1.5	2.2	1.8	2.7	3.7	3.2	1.6	2.4	2.0	2.9	4.1	3.5	1.5	1.9	1.7	0.7	1.3	1.0
8	Huasna Valley	4.8	6.4	5.6	2.5	3.4	3.0	4.2	5.4	4.8	2.6	3.7	3.1	4.8	6.5	5.7	2.0	2.6	2.3	1.8	2.6	2.2
9	Cuyama Valley	4.8	6.4	5.6	2.5	3.4	3.0	3.8	5.0	4.4	2.6	3.7	3.1	4.8	6.5	5.7	2.0	2.6	2.3	1.8	2.6	2.2
10	Carrizo Plain	5.1	6.7	5.9	2.8	3.6	3.2	4.1	5.3	4.7	2.9	3.9	3.4	5.2	6.8	6.0	2.1	2.7	2.4	2.0	2.7	2.4
11	Rafael/Big Spring	4.8	6.4	5.6	2.5	3.4	3.0	3.8	5.0	4.4	2.6	3.7	3.1	4.8	6.5	5.7	2.0	2.6	2.3	1.8	2.6	2.2
12	Santa Margarita	3.2	4.5	3.9	1.4	2.2	1.8	2.5	3.5	3.0	1.5	2.4	2.0	4.8	6.5	5.7	1.4	1.9	1.6	1.1	1.8	1.4
13	Atascadero/Templeton	3.2	4.5	3.9	1.4	2.2	1.8	2.5	3.5	3.0	1.5	2.4	2.0	4.8	6.5	5.7	1.4	1.9	1.6	1.1	1.8	1.4
14	Salinas/Estrella	3.8	5.2	4.5	1.9	2.7	2.3	3.4	4.5	4.0	2.0	2.9	2.5	5.2	6.8	6.0	1.6	2.2	1.9	1.4	2.1	1.7
15	Cholame Valley	4.9	6.5	5.7	2.5	3.3	2.9	3.9	5.1	4.5	2.6	3.6	3.1	4.8	6.5	5.7	1.9	2.4	2.1	2.0	2.7	2.3
16	Nacimiento	3.2	4.5	3.9	1.4	2.2	1.8	2.5	3.5	3.0	1.5	2.4	2.0	3.3	4.6	3.9	1.4	1.9	1.6	1.1	1.8	1.4

[a] Accounts for multi-cropping (assumes 3 vegetable crops planted per acre per year for WPA 1-7; assumes 2 vegetable crops planted per acre per year for WPA 8-16)

TABLE A2
PROJECT FUTURE CROP-SPECIFIC APPLIED WATER (AF/AC/YR) BY CROP GROP AND WATER PLANNING AREA

WPA #	WPA Name	Alfalfa (AF/Ac/Yr)			Citrus (AF/Ac/Yr)			Deciduous (AF/Ac/Yr)			Nursery (AF/Ac/Yr)			Pasture (AF/Ac/Yr)			Vegetable (AF/Ac/Yr)[a]			Vineyard (AF/Ac/Yr)		
		Low	High	Med	Low	High	Med	Low	Low	High	Med	Low	High	Med	Low	Low	High	Med	Low	High	Med	Low
1	San Simeon	1.3	2.4	1.8	0.5	1.2	0.8	1.3	2.1	1.7	0.6	1.4	1.0	1.5	2.5	2.0	0.9	1.3	1.1	0.0	0.6	0.3
2	Cambria	1.3	2.4	1.8	0.5	1.2	0.8	0.9	1.7	1.3	0.6	1.4	1.0	1.5	2.5	2.0	0.9	1.3	1.1	0.0	0.6	0.3
3	Cayucos	1.5	2.5	2.0	0.6	1.3	0.9	1.0	1.8	1.4	0.7	1.5	1.1	1.6	2.6	2.1	1.0	1.3	1.2	0.2	0.7	0.4
4	Morro Bay	2.1	3.0	2.5	1.1	1.7	1.4	1.5	2.2	1.9	1.1	1.9	1.5	2.2	3.2	2.7	1.2	1.5	1.4	0.5	1.0	0.7
5	Los Osos	2.1	3.0	2.5	1.1	1.7	1.4	1.5	2.2	1.9	1.1	1.9	1.5	2.2	3.2	2.7	1.2	1.5	1.4	0.5	1.0	0.7
6	San Luis Obispo/Avila	2.2	3.2	2.7	1.0	1.7	1.4	1.6	2.4	2.0	1.1	2.0	1.5	2.3	3.4	2.9	1.3	1.7	1.5	0.5	1.0	0.7
7	South Coast	2.6	3.6	3.1	1.4	2.1	1.7	2.6	3.5	3.1	1.5	2.3	1.9	2.7	3.8	3.3	1.4	1.8	1.6	0.7	1.2	0.9
8	Huasna Valley	4.6	6.1	5.3	2.4	3.3	2.8	4.1	5.2	4.6	2.5	3.5	3.0	4.6	6.1	5.4	1.9	2.5	2.2	1.7	2.5	2.1
9	Cuyama Valley	4.6	6.1	5.3	2.4	3.3	2.8	3.7	4.8	4.2	2.5	3.5	3.0	4.6	6.1	5.4	1.9	2.5	2.2	1.7	2.5	2.1
10	Carrizo Plain	4.9	6.3	5.6	2.7	3.5	3.1	4.0	5.0	4.5	2.7	3.7	3.2	4.9	6.4	5.7	2.1	2.6	2.3	2.0	2.6	2.3
11	Rafael/Big Spring	4.6	6.1	5.3	2.4	3.3	2.8	3.7	4.8	4.2	2.5	3.5	3.0	4.6	6.1	5.4	1.9	2.5	2.2	1.7	2.5	2.1
12	Santa Margarita	3.1	4.3	3.7	1.4	2.1	1.7	2.4	3.4	2.9	1.5	2.3	1.9	3.1	4.3	3.7	1.3	1.8	1.6	1.1	1.7	1.4
13	Atascadero/Templeton	3.1	4.3	3.7	1.4	2.1	1.7	2.4	3.4	2.9	1.5	2.3	1.9	3.1	4.3	3.7	1.3	1.8	1.6	1.1	1.7	1.4
14	Salinas/Estrella	3.7	4.9	4.3	1.8	2.6	2.2	3.3	4.3	3.8	1.9	2.8	2.3	3.7	5.0	4.3	1.6	2.1	1.8	1.4	2.0	1.7
15	Cholame Valley	4.7	6.1	5.4	2.4	3.2	2.8	3.8	4.9	4.4	2.5	3.4	2.9	4.8	6.2	5.5	1.8	2.3	2.0	1.9	2.6	2.2
16	Nacimiento	3.1	4.3	3.7	1.4	2.1	1.7	2.4	3.4	2.9	1.5	2.3	1.9	3.1	4.3	3.7	1.3	1.8	1.6	1.1	1.7	1.4

[a] Accounts for multi-cropping (assumes 3 vegetable crops planted per acre per year for WPA 1-7; assumes 2 vegetable crops planted per acre per year for WPA 8-16)

TABLE A3
EXISTING AGRICULTURAL WATER DEMAND (AFY) BY CROP GROP AND WATER PLANNING AREA

WPA #	WPA Name	Alfalfa (AFY)			Citrus (AFY)			Deciduous (AFY)			Nursery (AFY)			Pasture (AFY)			Vegetable (AFY)[a]			Vineyard (AFY)		
		Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med
1	San Simeon	0	0	0	9	24	17	0	0	0	0	0	0	0	0	0	0	0	0	33	65	49
2	Cambria	0	0	0	165	424	295	24	47	36	1	2	2	0	0	0	248	343	295	3	30	17
3	Cayucos	0	0	0	220	471	345	0	0	0	0	0	0	0	0	0	146	198	172	1	4	2
4	Morro Bay	0	0	0	753	1,206	979	0	0	0	0	0	0	82	120	101	796	1,038	917	43	81	62
5	Los Osos	0	0	0	0	0	0	6	8	7	125	209	167	1,176	1,725	1,451	1,444	1,883	1,664	1	1	1
6	San Luis Obispo/Avila	0	0	0	241	408	324	304	466	385	48	85	67	515	773	644	1,512	1,991	1,752	279	594	436
7[b]	South Coast	0	0	0	5,892	8,886	7,389	68	89	78	324	510	417	1,539	2,190	1,864	5,974	7,718	6,846	2,458	4,192	3,325
8	Huasna Valley	0	0	0	48	65	56	18	23	20	0	0	0	0	0	0	392	508	450	845	1,206	1,026
9	Cuyama Valley	0	0	0	0	0	0	2,448	3,236	2,842	0	0	0	0	0	0	22,287	28,861	25,574	377	538	457
10	Carrizo Plain	0	0	0	693	911	802	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Rafael/Big Spring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Santa Margarita	48	68	58	0	0	0	18	25	21	0	0	0	266	358	312	0	0	0	1,055	1,709	1,382
13	Atascadero/Templeton	0	0	0	46	70	58	1,799	2,516	2,158	123	194	159	2,851	3,827	3,339	28	38	33	3,718	6,026	4,872
14	Salinas/Estrella	3,053	4,182	3,617	607	859	733	1,981	2,672	2,327	151	223	187	7,447	9,770	8,609	4,160	5,463	4,812	38,080	56,562	47,321
15	Cholame Valley	0	0	0	65	87	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Nacimiento	0	0	0	65	99	82	1,970	2,755	2,362	0	0	0	33	46	39	0	0	0	1,054	1,709	1,381
Total		**3,101**	**4,250**	**3,676**	**8,804**	**13,509**	**11,157**	**8,636**	**11,837**	**10,237**	**773**	**1,224**	**998**	**13,908**	**18,808**	**16,358**	**36,988**	**48,043**	**42,515**	**47,946**	**72,716**	**60,331**

[a] Accounts for multi-cropping (assumes 3 vegetable crops planted per acre per year for WPA 1-7; assumes 2 vegetable crops planted per acre per year for WPA 8-16)

[b] The agricultural demand for WPA 7 in this table only includes areas outside of the NCMA, NMMA, and SMVMA.

TABLE A4
PROJECT FUTURE AGRICULTURAL WATER DEMAND (AFY) BY CROP GROP AND WATER PLANNING AREA

WPA #	WPA Name	Alfalfa (AFY)			Citrus (AFY)			Deciduous (AFY)			Nursery (AFY)			Pasture (AFY)			Vegetable (AFY)[a]			Vineyard (AFY)		
		Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med	Low	High	Med
1	San Simeon	0	0	0	9	22	16	0	0	0	0	0	0	0	0	0	0	0	0	5	42	23
2	Cambria	0	0	0	185	472	329	25	47	36	1	2	1	0	0	0	493	672	582	35	298	166
3	Cayucos	0	0	0	288	608	448	0	0	0	0	0	0	0	0	0	139	187	163	3	10	6
4	Morro Bay	0	0	0	764	1,208	986	0	0	0	0	0	0	76	110	93	797	1,027	912	52	96	74
5	Los Osos	0	0	0	22	35	29	5	8	7	117	193	155	1,103	1,592	1,347	1,502	1,937	1,720	1	1	1
6	San Luis Obispo/Avila	0	0	0	233	390	311	287	435	361	45	78	62	483	713	598	1,490	1,939	1,715	272	567	420
7[b]	South Coast	0	0	0	5,606	8,355	6,981	121	155	138	304	471	388	1,914	2,681	2,297	5,899	7,531	6,715	2,767	4,638	3,703
8	Huasna Valley	0	0	0	46	62	54	17	22	20	9	13	11	448	592	520	379	485	432	1,166	1,644	1,405
9	Cuyama Valley	0	0	0	0	0	0	2,366	3,090	2,728	0	0	0	0	0	0	22,506	28,802	25,654	366	516	441
10	Carrizo Plain	0	0	0	672	872	772	4	5	5	0	0	0	0	0	0	7	9	8	0	0	0
11	Rafael/Big Spring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Santa Margarita	46	64	55	5	8	7	21	29	25	0	0	0	296	410	353	0	0	0	1,356	2,169	1,762
13	Atascadero/Templeton	0	0	0	75	113	94	1,898	2,624	2,261	118	183	151	2,539	3,515	3,027	74	99	87	5,040	8,062	6,551
14	Salinas/Estrella	2,925	3,946	3,436	700	978	839	2,569	3,423	2,996	150	217	183	6,969	9,366	8,167	4,060	5,270	4,665	43,365	63,625	53,495
15	Cholame Valley	0	0	0	63	83	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Nacimiento	0	0	0	66	99	83	2,064	2,853	2,459	0	0	0	31	43	37	0	0	0	2,577	4,122	3,350
Total		**2,972**	**4,011**	**3,491**	**8,733**	**13,306**	**11,020**	**9,376**	**12,690**	**11,033**	**744**	**1,158**	**951**	**13,858**	**19,024**	**16,441**	**37,346**	**47,957**	**42,652**	**57,005**	**85,790**	**71,397**

[a] Accounts for multi-cropping (assumes 3 vegetable crops planted per acre per year for WPA 1-7; assumes 2 vegetable crops planted per acre per year for WPA 8-16)
[b] The agricultural demand for WPA 7 in this table only includes areas outside of the NCMA, NMMA, and SMVMA.

TABLE A5
CLIMATE GROUP FOR CROP EVAPOTRANSPIRATION BY WPA

WPA#	WPA	Assigned Climate Group
1	San Simeon	San Simeon
2	Cambria	San Simeon
3	Cayucos	San Simeon
4	Morro Bay	Morro Bay
5	Los Osos	Morro Bay
6	San Luis Obispo/Avila	San Luis Obispo
7	South Coast	Arroyo Grande/Nipomo
8	Huasna Valley	Cuyama
9	Cuyama Valley	Cuyama
10	Carrizo Plain	Cuyama
11	Rafael/Big Spring	Cuyama
12	Santa Margarita	Atascadero
13	Atascadero/Templeton	Atascadero
14	Salinas/Estrella	Paso Robles
15	Cholame Valley	Blackwells Corner
16	Nacimiento	Atascadero

[a] Climate Groups were determined by looking at available Eto by WPA

TABLE A6
REFERENCE CROP EVAPOTRANSPIRATION (inches/month)[a]

Month	Arroyo Grande	Blackwells Corner	Morro Bay	Paso Robles	San Luis Obispo	San Simeon	Nipomo	Atascadero	Cuyama
January	2.0	1.4	2.0	1.6	2.0	2.0	2.2	1.2	2.1
February	2.2	2.1	2.2	2.0	2.2	2.0	2.5	1.5	2.4
March	3.2	3.8	3.1	3.2	3.2	2.9	3.8	2.8	3.8
April	3.8	5.4	3.5	4.3	4.1	3.5	5.1	3.9	5.4
May	4.3	7	4.3	5.5	4.9	4.2	5.7	4.5	6.9
June	4.7	7.8	4.5	6.3	5.3	4.4	6.2	6	7.9
July	4.3	8.5	4.6	7.3	4.6	4.6	6.4	6.7	8.5
August	4.6	7.7	4.6	6.7	5.5	4.3	6.1	6.2	7.7
September	3.6	5.8	3.8	5.1	4.4	3.5	4.9	5	5.9
October	3.2	3.9	3.5	3.7	3.5	3.1	4.1	3.2	4.5
November	2.4	1.9	2.1	2.1	2.4	2.0	2.9	1.7	2.6
December	1.7	1.2	1.7	1.4	1.7	1.7	2.3	1	2
Total (in/yr)	40.0	56.5	39.9	49.2	43.8	38.2	52.2	43.7	59.7

[a] The ETo values in this table were derived from: CIMIS, 2009; DWR, 1999; University of California, 1987; Snyder et al., 1987

TABLE A7
CROP COEFFICIENTS FOR EACH CROP GROUP

Month	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetables	Vineyard
January	0.00	0.56	0.00	0.50	0.00	0.00	0.00
February	0.00	0.56	0.00	0.50	0.00	0.00	0.00
March	0.90	0.56	0.60	0.50	1.00	0.00	0.00
April	0.90	0.56	0.70	0.50	1.00	0.00	0.00
May	0.90	0.56	0.80	0.50	1.00	0.00	0.60
June	0.90	0.56	0.90	0.50	1.00	0.00	0.70
July	1.00	0.56	1.00	0.50	1.00	0.00	0.60
August	1.00	0.56	1.00	0.50	1.00	1.00	0.50
September	1.10	0.56	0.90	0.50	1.00	1.00	0.30
October	1.00	0.56	0.80	0.50	1.00	1.00	0.10
November	0.00	0.56	0.00	0.50	0.00	1.00	0.00
December	0.00	0.56	0.00	0.50	0.00	1.00	0.00

[a] Adapted from DWR 113-3 (DWR, 1974), UC Leaflet 21427 (Snyder et al., 1989a), UC Leaflet 21428 (Snyder et al., 1989b)

Crop Evapotranspiration (Etc). Crop evapotranspiration was calculated by multiplying the reference evapotranspiration and for each agricultural crop and area. Annual Crop evapotranspiration (AF/Ac/Yr) for each crop group and WPA is summarized in **Table A8**.

TABLE A8
ANNUAL CROP EVAPOTRANSPIRATION [a] (AF/Ac/Yr)
FOR EACH CROP GROUP AND WPA

WPA #	WPA Name	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable	Vineyard
1	San Simeon	2.4	1.8	2.2	1.6	2.5	1.2	1.0
2	Cambria	2.4	1.8	2.2	1.6	2.5	1.2	1.0
3	Cayucos	2.4	1.8	2.2	1.6	2.5	1.2	1.0
4	Morro Bay	2.6	1.9	2.3	1.7	2.7	1.3	1.0
5	Los Osos	2.6	1.9	2.3	1.7	2.7	1.3	1.0
6	San Luis Obipso/Avila	2.8	2.0	2.5	1.8	3.0	1.5	1.2
7	South Coast	3.0	2.2	2.6	1.9	3.1	1.5	1.2
8	Huasna Valley	4.1	2.8	3.7	2.5	4.2	1.9	1.7
9	Cuyama Valley	4.1	2.8	3.7	2.5	4.2	1.9	1.7
10	Carrizo Plain	4.1	2.8	3.7	2.5	4.2	1.9	1.7
11	Rafael/Big Spring	4.1	2.8	3.7	2.5	4.2	1.9	1.7
12	Santa Margarita	3.1	2.0	2.8	1.8	3.2	1.4	1.3
13	Atascadero/Templeton	3.1	2.0	2.8	1.8	3.2	1.4	1.3
14	Salinas/Estrella	3.4	2.3	3.0	2.1	3.5	1.6	1.4
15	Cholame Valley	4.0	2.6	3.6	2.4	4.2	1.7	1.7
16	Nacimiento	3.1	2.0	2.8	1.8	3.2	1.4	1.3

[a] Crop evapotranspiration is equal to the product of crop coefficients and reference crop evapotranspiration

Effective Rainfall (ER). The effective rainfall was calculated for each area by utilizing historical annual precipitation in San Luis Obispo County and effective precipitation based on crop type and water planning area.

The historical yearly precipitation gages that were used for the water demand analysis are listed in **Table A9**. The rainfall from each of these gages was assigned to a particular water planning area. Due to substantial variability

TABLE A9
SAN LUIS OBISPO COUNTY RAINFALL STATIONS USED FOR ANALYSIS

Rainfall Station	Average (Inches/Yr)	County Gage #	Record
Santa Rosa Creek	27.5	169	1964-2003
Cayucos Creek	24.8	173.1	1965-2003
Baywood Park/Camp SLO	18.2	177/224	1967-2003
CalPoly	22.2	1	1870-2003
Lopez Dam	19.6	178.1	1968-2003
Nipomo	16.6	38	1921-2003
Santa Maria Valley	15.3	23	1910-2003
Paso Robles	15.2	10	1887-2003
AMWC	17.4	34	1916-2003
Santa Margarita	24.3	9a	1972-2003
Carrizo Plain	10.9	151.2	1966-2003
White Ranch	12.3	93	1931-2008
Oceano CSA #13	16.1	157.1	1959-2006

SOURCE: San Luis Obispo County, 2005 & 2009 http://www.slocountywater.org/site/Water%20Resources/Data/maps/data.htm

within WPA 7, ESA used an average precipitation of Nipomo and Lopez Dam gages for this area. **Table A10** lists the range of effective rainfall percentage for each crop group.

TABLE A10
EFFECTIVE RAINFALL PERCENTAGE FOR EACH CROP GROUP[a]

Range	Alfalfa	Citrus	Deciduous	Nursery	Pasture	Vegetable[b]	Vineyard
Low	40%	40%	40%	30%	40%	15%	30%
High	60%	60%	60%	50%	60%	25%	50%

[a] Effective rainfall general ranges from 29% to 59% (Burt et al., 2002)
[b] Accounts for multi-cropping by reducing vegetable effective rainfall in half.

Frost Protection (FP). The sprinkler frost protection water requirement was estimated for grapes (throughout the County), as well as strawberries and blueberries (WPA 1, 7, 8, and 14). For vineyards, the frost threat occurs from March to April in San Luis Obispo County. For strawberries and blueberries in San Luis Obispo County, primarily in WPA 7 and 14, respectively the frost threat occurs from January to March. Sprinkler frost protection requires a large amount of water, which may be higher than a typical groundwater well can produce (Battany, 2009). Therefore, growers that use sprinkler frost protection will generally have large reservoirs on site or nearby. The frost protection values ESA used were 0.25 AF/Ac/Yr for vineyards throughout the County and 0.4 AF/Ac/Yr for strawberries and blueberries in WPA 1, 7, 8, and 14. This was based on information provided by the

UC Farm Advisors and input from the WRAC and other agricultural stakeholders. Details on how the numbers were determined for vineyards and strawberry frost protection are shown below.

Grapes

Sprinkler frost protection on vineyards will only occur where growers have access to a large reservoir onsite or nearby (Battany, 2009). Overhead sprinklers may operate from 4-6 hours per evening for 10-12 nights per year (San Luis Obispo County, 1998). System flow rates generally range from 40 to 50 gallons per minute per acre (gpm/Ac), 0.09 inches per hour (in/hr) and 0.11 in/hr, respectively. **Table A11** shows an example of yearly applied water for frost protection on a vineyard depending on minutes of runtime and a system flow rate of 50 gpm/Ac. To determine the percentage of acreage that uses sprinkler frost protection would require a detailed look at all vineyards on aerial photography and/or discussions with all vineyard owners. The amount of frost protection on vineyards varies from year to year and farm to farm. For purposes of this analysis, ESA has assumed that approximately 50% of the vineyards use frost protection. Therefore, ESA used 0.25 AF/Ac/Yr for frost protection on grapes throughout the County.

TABLE A11
RANGE OF ANNUAL APPLIED WATER FOR FROST PROTECTION ON A TYPICAL VINEYARD (AF/AC/YR)

Hours per night	Nights per year	Annual Applied Water (AF/Ac/Yr)
4	10	0.34
	11	0.38
	12	0.41
5	10	0.43
	11	0.47
	12	0.52
6	10	0.52
	11	0.57
	12	0.62

SOURCE: San Luis Obispo County, 1998

Strawberries and Blueberries

The amount of frost protection on strawberries varies from year to year and farm to farm. Sprinklers typically operate for 6 to 10 hours a night for 8-12 nights per year (San Luis Obispo County, 1998). System flow rates for frost protection of strawberries are approximately 45 gpm/Ac (0.10 in/hr). **Table A12** shows an example of yearly applied water for frost protection on strawberries depending on minutes of runtime and a system flow rate of 45 gpm/Ac. For purposes of the agricultural water demand analysis, strawberries and blueberries are grouped in the deciduous group. To account for the frost protection of strawberries and blueberries on some of the crops, 0.4 AF/Ac/Yr was added to the deciduous crop in WPA 1, 7, 8, and 14.

TABLE A12
RANGE OF ANNUAL APPLIED WATER FOR FROST PROTECTION ON STRAWBERRIES (AF/AC/YR)

Hours per night	Nights per year	Annual Applied Water (AF/Ac/Yr)
6	8	0.48
	10	0.60
	12	0.72
8	8	0.64
	10	0.80
	12	0.96
10	8	0.80
	10	1.00
	12	1.20

SOURCE: San Luis Obispo County, 1998

Leaching Requirements (LR). Leaching requirements, amount of over watering necessary to remove salts from the soil, were assumed to be satisfied by rainfall in the majority of the coastal areas (WPA 1 to WPA 6). Leaching requirements for the Paso Robles Basin were presented by Fugro and Cleath (2002). ESA used these estimates, approximately 5 percent to 16 percent, to identify existing LR for inland areas. **Table A12** includes the leaching requirement percentage used for crop groups located in inland WPAs (WPA 8-16). Mark Gaskell, UC Farm Advisor, stated that strawberries may have a leaching requirement of 10 to 20 percent (Gaskell, 2009). Therefore, ESA used a leaching requirement of 11 percent for existing demand in WPA 7. The future leaching requirements may be greater based on a build-up of salts in the soil (Battany, 2008; Gaskell, 2009). Therefore, the future leaching requirements were assumed to be 1 to 2 percent higher than existing leaching requirements.

TABLE A12
LEACHING REQUIREMENTS FOR INLAND AREAS IN SAN LUIS OBISPO COUNTY

	Leaching Requirements (%)	
Crop Group	Existing	Future
Alfalfa	8%	10%
Nursery	5%	7%
Pasture	8%	10%
Citrus	5%	7%
Deciduous	11%	13%
Vegetable	8%	10%
Vineyard	16%	18%

SOURCE: Existing leaching requirements were adapted from Fugro and Cleath, 2002 (Table 13)

Irrigation Efficiencies (IE). Irrigation efficiencies were calculated by utilizing distribution uniformity and losses provided by the San Luis Obispo County/Santa Barbara County Cachuma Resource Conservation District

(CRCD), San Luis Obispo County Coastal Resources Conservation District, vineyard owners, and recent studies. Additionally, ESA incorporated input from the WRAC and other agricultural stakeholders.

Higher irrigation efficiencies depend primarily on improving system distribution uniformity, decreasing surface losses, and reducing scheduling errors. Irrigation efficiencies are difficult to measure and are often estimated according to the system type, special practices, and distribution uniformities. Micro irrigation systems include micro-sprinklers, drip emitters, and drip tape. Micro systems tend to have higher irrigation efficiencies than sprinkler systems (**Table A13**). Regardless, there is a range between potential and actual performances of irrigation systems.

TABLE A13
ESTIMATED IRRIGATION EFFICIENCY RANGES BASED ON SYSTEM TYPE

	Estimated Irrigation Efficiency (IE) (%)		
Irrigation System Type	**Maximum Potential IE (includes excellent design and excellent management)**	**Average IE (includes excellent design and average management)**	**Low IE (includes average design and below average management)**
Sprinkler	80-85	75	50-60
Micro	90-95	85	60-70

SOURCE: Peterson, 2009a

Local farm advisors were contacted regarding the types of irrigation systems on crop groups. **Table A14** summarizes the type of irrigation systems used on specific crops. In 1998 MWP, the majority of vegetables were irrigated with surface systems. Over the last 10 years, surface irrigation systems have been converted to micro and sprinkler irrigation systems (Peterson, 2009a).

TABLE A14
ESTIMATES OF CURRENT IRRIGATION SYSTEM TYPES BY CROP GROUP

	Percentage of Acreage with Irrigation System Type (%)		
Crop Group	**Surface**	**Sprinkler**	**Micro**
Alfalfa	0	100	0
Citrus (permanent)	0	20	80
Deciduous (permanent)	0	20	80
Nursery	0	50	50
Pasture	0	100	0
Permanent	0	20	80
Vegetable	0	40	60
Vineyard	0	0	100

[a] Acreage was placed in a particular category according to the system they use most of the season.

SOURCE: Peterson, 2009b

Although measuring irrigation efficiency is difficult, a system's distribution uniformity can be quantified and measured in the field. The relationship between distribution uniformity and irrigation efficiency can be expressed as follows:

Irrigation Efficiency=Distribution Uniformity x (1-Losses)

The CRCD conducts irrigation evaluations with the Mobile Irrigation Lab. The CRCD has completed more than 325 evaluations related to irrigation efficiencies throughout San Luis Obispo and Santa Barbara Counties. The irrigation specialists provided estimates presented in Table A9 and Table A10, as well as information on distribution uniformity. Recent evaluations have shown that the distribution uniformity is approximately 75%, which is 5% higher than in 1998 (Peterson, 2009a). This change is primarily due to the change from surface to micro and sprinkler systems.

The sprinkler systems are associated with distribution uniformities of approximately 75% and micro systems are associated with distribution uniformities of 85%. For the purposes of estimating applied water, irrigation efficiencies were assigned to crop group according to the primary irrigation system type. **Table A15** includes existing irrigation efficiencies for crop groups**.** Irrigation efficiencies are likely to continue to improve in the future, due to improvements in equipment, economic pressure (increased electricity costs if groundwater levels decline), or have economic incentives (Isensee, 2009). **Table A16** includes projected future irrigation efficiencies for crop groups.

TABLE A15
EXISTING IRRIGATION EFFICIENCIES FOR CROP GROUPS

	Existing Irrigation Efficiency Range (%)	
Crop Group	**Low**	**High**
Alfalfa	60%	75%
Nursery	60%	75%
Pasture	60%	75%
Citrus & Deciduous	70%	85%
Vegetable	70%	85%
Vineyard	70%	85%

SOURCE: Peterson, 2009a and 2009b

TABLE A16
FUTURE PROJECTED IRRIGATION EFFICIENCIES FOR CROP GROUPS

	Projected Future Irrigation Efficiency Range (%)	
Crop Group	**Low**	**High**
Alfalfa	65%	80%
Nursery	65%	80%
Pasture	65%	80%
Citrus & Deciduous	75%	90%
Vegetable	75%	90%
Vineyard	75%	90%

SOURCE: Peterson, 2009a and 2009b

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Master Water Plan Project
Part 1: Methodology for Determining Vacant and Developed Properties

Intro - The assessor's GIS parcel database consists of 122895 individual APNs. Each APN record is populated with information indicating ownership, an abbreviated legal description (LEGAL), land value (LAND), improvement value (IMPS), home owner's exemption (HOX), land use codes* (PRIM_LUC, LUC_1, LUC_2, LUC_3), etc. A "Status" field was added to the GIS parcel database to designate whether a property is either developed or vacant or within city limits.

Step 1: Select all parcels that are within city limits and designate status as "City" (total APNs = 56594).

Step 2: Select (from the remaining parcels - 66301) all parcels that have a home owner's exemption and designate status as "Developed LUCode – HOX Res" (total APNs = 20879).

Step 3: Select parcels (from the remaining parcels - 45422) that have an improvement value of less than $1000 and designate status as "Vacant <= 1000 IMP" (total APNs = 25519).

Step 4: From the parcels selected above (Vacant <= 1000 IMP) all parcels with a PRIM_LUC indicating: common area, church, government, greenhouse, public trns facility, school, sludge site, utility, winery (121, 580, 636, 637, 802, 810, 820, 850 – 861 or legal field indicates "road") were selected and viewed using aerial photography to determine status. Note: Properties with the PRIM_LUC's indicated above have improvements often not assessed because of tax status. Additional review was required in order to determine whether or not properties were developed or vacant and status designated as "Vacant <= 1000 IMP" or "Developed <= 1000 IMP " and land use code type where applicable or "Military Base" or "Road" or "Lake" (total APNs = 2282).

Step 5: Select parcels (from the remaining parcels - 19903) that have land use codes indicating development types consistent with residential, commercial, industrial, manufacturing, motel, office, retail, etc. (i.e., 110 – 415, 421, 422, 423, 424, 425, 427, 428, 435, 440, 509, 511, 512, 515, 520, 522, 536) and that also have improvement values greater than 20,000. Designate status as "Developed LUCode" and land use code type where applicable (total APNs = 16425).

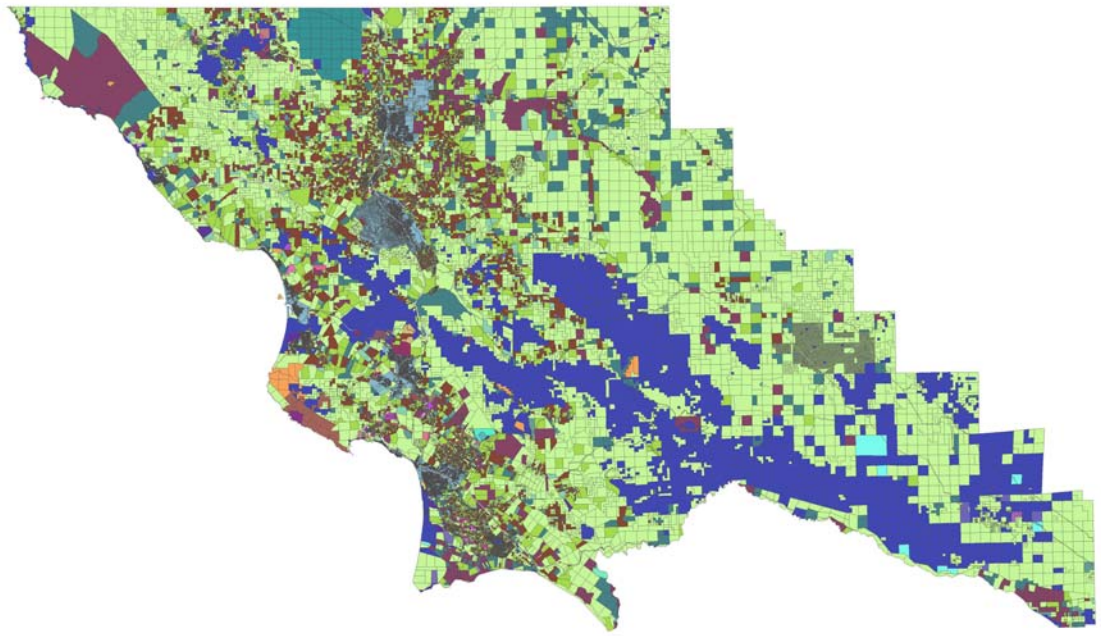
Step 6: Select parcels (from the remaining parcels 3475) that have an improvement value of more than $1000 and less than $20,000 and designate as "Vacant Aerial <= 20000 IMP" or "Developed Aerial <= 20000 IMP" and land use code type where applicable (total APNs = 1965).

Step 7: The remaining parcels (1513) have an improvement value ranging from 20228 – 7903723 and the PRIM_LUC indicates use other than residential. All parcels zoned as RMF, RSF, RS, RR and RL were viewed using aerial photography and determined to be either "Vacant Aerial" or "Developed Aerial" and land use code type where applicable (total APNs = 536).

Step 8: The remaining 977 parcels were sorted by land use category. All parcels zoned AG were viewed using aerial photography and designated status as “Vacant Aerial” or “Developed Aerial” and land use code type where applicable (total APNs = 890).

Step 9: The remaining 87 parcels, which have a zoning other than Residential or Agriculture and have an improvement value greater than $20,000 were viewed individually and status designated as “Vacant Aerial” or “Developed Aerial” and land use code type where applicable.

* The assessor land use codes have been found to contain inconsistencies, errors and omissions. While it is impractical to view each parcel individually to verify which are developed or vacant, many parcels were viewed individually using the aerial photography to determine status.



Parcels

Status

- City
- Developed <= 1000 IMP - Airport Facility
- Developed <= 1000 IMP - Campground
- Developed <= 1000 IMP - Cemetery
- Developed <= 1000 IMP - Church
- Developed <= 1000 IMP - Dam
- Developed <= 1000 IMP - Drainage
- Developed <= 1000 IMP - Fire Dept
- Developed <= 1000 IMP - Govt Building
- Developed <= 1000 IMP - Greenhouse
- Developed <= 1000 IMP - Library
- Developed <= 1000 IMP - Lighthouse
- Developed <= 1000 IMP - Medical Facility
- Developed <= 1000 IMP - Nuclear Power Plant
- Developed <= 1000 IMP - Park
- Developed <= 1000 IMP - Parking Lot
- Developed <= 1000 IMP - Prison
- Developed <= 1000 IMP - Radar Site
- Developed <= 1000 IMP - Railroad
- Developed <= 1000 IMP - Recreation
- Developed <= 1000 IMP - Res
- Developed <= 1000 IMP - Reservoir
- Developed <= 1000 IMP - Road
- Developed <= 1000 IMP - School
- Developed <= 1000 IMP - Sewer
- Developed <= 1000 IMP - Sludge Site
- Developed <= 1000 IMP - Student Res
- Developed <= 1000 IMP - Utility
- Developed <= 1000 IMP - Water Facility
- Developed <= 1000 IMP - Water Pump
- Developed <= 1000 IMP - Water Tank
- Developed <= 1000 IMP - Well
- Developed <= 1000 IMP - Winery
- Developed Aerial - Campground
- Developed Aerial - Church
- Developed Aerial - Comm/Industrial
- Developed Aerial - Fire Dept
- Developed Aerial - Golf
- Developed Aerial - Government
- Developed Aerial - Govt Building
- Developed Aerial - Greenhouse
- Developed Aerial - Mining
- Developed Aerial - Oil Facility
- Developed Aerial - Parking Lot
- Developed Aerial - Post Office
- Developed Aerial - Recreation
- Developed Aerial - Res
- Developed Aerial - School
- Developed Aerial - Utility
- Developed Aerial - Water Company
- Developed Aerial <= 20000 IMP - Automotive
- Developed Aerial <= 20000 IMP - Campground
- Developed Aerial <= 20000 IMP - Church
- Developed Aerial <= 20000 IMP - Comm/Industrial
- Developed Aerial <= 20000 IMP - Dam
- Developed Aerial <= 20000 IMP - Food Service
- Developed Aerial <= 20000 IMP - Golf
- Developed Aerial <= 20000 IMP - Greenhouse
- Developed Aerial <= 20000 IMP - MH Park
- Developed Aerial <= 20000 IMP - Manufacturing
- Developed Aerial <= 20000 IMP - Meeting Hall
- Developed Aerial <= 20000 IMP - Motel
- Developed Aerial <= 20000 IMP - Office
- Developed Aerial <= 20000 IMP - Oil Facility
- Developed Aerial <= 20000 IMP - Park
- Developed Aerial <= 20000 IMP - Parking Lot
- Developed Aerial <= 20000 IMP - Res
- Developed Aerial <= 20000 IMP - Retail
- Developed Aerial <= 20000 IMP - Road
- Developed Aerial <= 20000 IMP - School
- Developed Aerial <= 20000 IMP - Warehouse
- Developed Aerial <= 20000 IMP - Water Company
- Developed Aerial/LUCode - Govt Building
- Developed Aerial/LUCode - Oil Facility
- Developed Aerial/LUCode - Recreation
- Developed Aerial/LUCode - Res
- Developed Aerial/LUCode - Winery
- Developed LUCode - Apartments
- Developed LUCode - Automotive
- Developed LUCode - Bank
- Developed LUCode - Campground
- Developed LUCode - Cemetery
- Developed LUCode - Church
- Developed LUCode - Comm/Industrial
- Developed LUCode - Common Area
- Developed LUCode - Food Service
- Developed LUCode - Golf
- Developed LUCode - Greenhouse
- Developed LUCode - Grocery Store
- Developed LUCode - HOX Res
- Developed LUCode - Laundromat
- Developed LUCode - MH Park
- Developed LUCode - Manufacturing
- Developed LUCode - Medical Facility
- Developed LUCode - Mini Storage
- Developed LUCode - Mixed Living 5 or more units
- Developed LUCode - Mortuary
- Developed LUCode - Motel
- Developed LUCode - Office
- Developed LUCode - Parking Lot
- Developed LUCode - Recreation
- Developed LUCode - Res
- Developed LUCode - Retail
- Developed LUCode - Shopping Center
- Developed LUCode - Warehouse
- Developed LUCode - Winery
- Lake
- Military Base
- Ocean
- Railroad
- Road
- Vacant <= 1000 IMP
- Vacant <= 1000 IMP - Campground
- Vacant <= 1000 IMP - Church
- Vacant <= 1000 IMP - Common Area
- Vacant <= 1000 IMP - Golf
- Vacant <= 1000 IMP - Government
- Vacant <= 1000 IMP - Marina
- Vacant <= 1000 IMP - Park
- Vacant <= 1000 IMP - Recreation
- Vacant <= 1000 IMP - School
- Vacant <= 1000 IMP - Utility
- Vacant Aerial
- Vacant Aerial - Government
- Vacant Aerial - Recreation
- Vacant Aerial <= 20000 IMP
- Vacant Aerial <= 20000 IMP - Common Area
- Vacant Aerial <= 20000 IMP - Government
- Vacant Aerial <= 20000 IMP - Recreation
- Vacant Aerial <= 20000 IMP - Utility
- Vacant Aerial/LUCode - Common Area
- Vacant Aerial/LUCode - Government

Part 2: Determination of Development Potential – Subdivision and Units.

Urban and Village Area Additional Development Potential Assumptions for County Master Water Plan

Vacant Land

To determine additional development potential on vacant parcels, use the following densities and intensities, except as shown below for particular communities. **Additional residential development potential should be multiplied by 0.9** to account for environmental and physical constraints and the likelihood that not all parcels will be developed to full potential.

RR: 5-acre parcel size; assign 1 dwelling unit per parcel
RS: 1-acre parcel size; assign one dwelling unit per parcel
RSF: 5 units per acre
RMF: 20 units/acre (only on parcels > or = to 6,000 ft.^{2}; otherwise, 1 unit)
O/P,CR: Floor area (ft.^{2}) = .2625 x total parcel area (ft.^{2})
(.2625 = .35 FAR x .75)
CS: Floor area (ft.^{2}) =.1875 x total parcel area (ft.^{2})
(.1875 = (.25 FAR x .75)
IND: Floor area (ft.^{2}) =.15 x total parcel area (ft.^{2})
(.15 = .20 FAR x .75)

Exceptions*:*
Note: RMF densities apply only on parcels > or = to 6,000 ft.^{2}; otherwise, 1 unit

Cayucos: RMF: 10 units per acre (planning area standard)
Cambria: RMF: 15 units per acre
Santa Margarita: RMF: 15 units per acre (due to septic)
Templeton: RSF: 4 units per acre (due to 7,500 ft.^{2} min. parcel size)
Oceano: RMF: 15 units per acre (planning area standard)
Nipomo: RMF: 15 units per acre (some planning area standards reduce density)
Whitley Gardens: RS: 2.5-acre minimum parcel size (planning area standard)

Shandon: SP- 6 Use draft plan buildout as follows:

RS: 88
RSF: 1,334
RMF: 426
AG: 25
Mixed-use: 284 residential, 332,000 ft.^{2} commercial
CS/Res.: 52 residential, 84,000 ft.^{2} commercial

CR: 10 residential, 241,500 ft.^{2} commercial
CS: 1 residential, 730,000 ft.^{2} commercial

Los Ranchos/ Edna Village: SP- 2 Use total buildout of 690 units as follows:
REC: 258
RR: 45
RS: 200
RSF: 187

Black Lake: SP-1 REC: 606

Woodlands: SP- 5 Residential development potential = 1,320 units as follows:

REC: 1,240 single-family, 60 multi-family, 500-unit hotel/resort + commercial on 28 acres
CR: 20 multi-family
CR: 140,000 ft.^{2}
CS: 350,000 ft.^{2}

Heritage Ranch: SP- 3 total development potential per planning area standards (2,900, including RV sites)

Oak Shores: SP- 4 additional potential per planning area standards (1,786 including RV spaces)

Rural Area Build-Out Assumptions for the Master Water Plan[1]

Planning Area	Category								
	AG	RL	RR	RS[2]	CS[4]/ IND[4]	CR[5]	REC	PF[3]	OS[3]
Adelaida	160	80[10]	5	N/A	N/A	N/A	No dev.	-----	-----
El Pomar-Estrella	160	80	5	2.5	N/A	N/A	No dev.	-----	-----
Huasna-Lopez	160	80	N/A	N/A	N/A	N/A	No dev.	-----	-----
Los Padres	160	160	N/A	N/A	N/A	N/A	N/A	-----	-----
Las Pilitas	160	80	10	N/A	N/A	2.5	20	-----	-----
Nacimiento	160	80	10	N/A	N/A	2.5	20	-----	-----
Salinas River	80	80	5	2.5	2.5 (CS)	2.5	No dev.	-----	-----
San Luis Bay	80	80	5	2.5	N/A	N/A	No dev.	-----	-----
San Luis Obispo	80	160	10	2.5	N/A	N/A	No dev.	-----	-----
Shandon-Carrizo	160	160	5[6]	N/A	N/A	N/A	N/A	-----	-----
South County	80	80[7]	5[8]	2.5	2.5 (CS) 10 (IND)	2.5	66 res. units[9]	-----	-----
North Coast	160	80	N/A	N/A	N/A	2.5	No dev.	-----	-----
Estero	160	160[10]	5	5	N/A	N/A	No dev.[11]	-----	-----
San Luis Bay	20 res.	80	N/A	N/A				-----	-----

(coastal)	units[12]								
South County (coastal)	80	No dev.	N/A	N/A	No dev. (IND)	N/A	No dev.	-----	-----

1. Numbers are assumed average minimum parcel sizes for new land divisions, unless otherwise indicated. Residential buildout potential is determined as follows:
   a. Determine the numbers of potential parcels using the minimum parcel sizes in the table, but use actual buildout numbers from the table where indicated
   b. Assign one dwelling unit per existing and potential parcel
   c. For purposes of the Master Water Plan, determine existing numbers of dwelling units by planning area, and then subtract that from the total number of dwelling units from b. above to yield additional residential development potential by planning area
   e. Multiply the additional residential development potential by 0.9 to account for environmental and physical constraints and the likelihood that not all parcels will be developed to full potential.
   f. Add the additional residential development potential from e. above to the number of existing residential units in the planning area to yield total residential buildout for the planning area.
2. Assume that ordinance changes will discourage community water systems in rural areas per COSE; some rural areas have planning area standards for 2.5-acre minimum parcel sizes
3. Assumes no additional development potential in these categories
4. Where parcel sizes are specified, determine development potential ($ft.^2$ of floor area) as follows:
   a. Determine total number of existing and potential parcels
   b. For each existing and potential parcel, development potential ($ft.^2$ of floor area) = parcel area x 0.18 floor area ratio
   c. Multiply the square footage from b. above by .75 to yield total commercial or industrial buildout. This accounts for environmental and physical constraints, possible existing residential development in Commercial and Industrial categories, and the likelihood that not all such parcels will be developed to their full potential (Commercial and Industrial categories are typically not built out to their zoning capacities).
5. Where parcel sizes are specified, determine development potential ($ft.^2$ of floor area) as follows:
   a. Determine total number of existing and potential parcels
   b. For each existing and potential parcel, development potential ($ft.^2$ of floor area) = parcel area x 0.20 floor area ratio
   c. Multiply the square footage from b. above by .75 to yield total commercial buildout; this accounts for environmental and physical constraints, possible existing residential development in Commercial and Industrial categories, and the likelihood that not all such parcels will be developed to their full potential (Commercial categories are typically not built out to their zoning capacities).
6. This area is adjacent to the Shandon URL and is to be included in an expanded URL per the draft Shandon Community Plan; if the buildout for this area is included in the buildout for the Shandon urban area, then do not assign buildout for this area
7. Replace residential buildout for Southland Area adjacent to Nipomo (RL on west side of 101; AG, RS and REC on east side of 101) with buildout for industrial park per planning area standard; use .25 FAR and do not adjust further, as the site is vacant, has minimal constraints, should be included in the Nipomo Urban Reserve Line, and should develop with full urban services. [APNs: 092-152-039 (RL); 092-153-048,032; 090-171-036,008,018,007)

8. Replace residential buildout for Canada Ranch adjacent to Nipomo with buildout for industrial park/retail/residential per planning area standard. This area should be included in the Nipomo Urban Reserve Line and develop with full urban services (APN: 091-301-041).
9. Assign 50 dwelling units in the REC category per Bartleson Ranch planning area standard (APNs: 047-311-008; 075-102-004,003) and 16 units in the REC category per Willow/ Via Concha planning area standard (APNs: 091-181-053,052)
10. No development potential on existing lots in the Morro Strand and Morro Rock View subdivisions
11. No further residential development in the REC category along Hwy. 41 occupied by the mobilehome and RV park and adjacent area (see limitation on use standard)
12. Total residential development potential in Cienega Valley assumes one dwelling per existing parcel--no additional subdivision potential; no residential development along Diablo coast

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DRAFT memorandum

date December 17, 2009

to Courtney Howard, San Luis Obispo County; Water Resources Advisory Committee (WRAC)

from Annika Fain, ESA

subject San Luis Obispo County Rural Water Demand Analysis (Appendix C)

Rural Water Demand

A water duty factor was applied to the number of dwelling units of unincorporated areas outside of land designated as rural or agricultural. The County Land Use ArcGIS® database was used to determine where rural residential land use exists and how many dwelling units (DU) exist. Also, the database was used to determine where the future development may occur and how many DU could be built. The rural water demand analysis in combination with the urban and agricultural demand analysis, confirmed that the existing rural water demand is less than 5 percent of the total water demand (including urban, agricultural, and rural) (ESA, 2009-Table 1) . The analysis confirmed that even if 75 percent or more of the available rural residential land is developed, then the countywide rural water demand would be less than 10 percent of the total water demand (ESA, 2009-Table 1). Prior to the County providing the County Land Use ArcGIS® to ESA, a number of steps were completed to update the countywide database. These are explained in detail in Appendix B (San Luis Obispo County, 2009). We followed a series of seven steps for this analysis.

County Land Use Analysis

The main steps ESA followed after receiving the County Land Use ArcGIS® layer are as follows:

Step 1: Created a rural land use ArcGIS® layer from existing County Land Use ArcGIS® layer.

- Opened the County Land Use file that includes approximately 120,000 parcels.
- Calculated existing acreage for all parcels (Calc_Acrge).
- Subtracted out all parcels that were located in areas where an urban demand has been defined by excluding areas within the URL, VRL, CSD, and CSA boundaries, as well as areas where agricultural demand has been calculated.
- Calculated new acreage for parcels that were partially in an urban or agricultural defined area (New_Acrge).
- Calculated the ratio of new acreage to existing ratio (Acge_Ratio).

- For those parcels where the ratio of new acreage over existing acreage was greater than 50%, an indicator was set to "1" (Acge_Ind). These were used in the rural demand calculations.
- For the parcels where the ratio of new acreage over existing acreage was less than or equal to 50% than the demand was calculated as an urban or agricultural parcel.
- Rural land use was analyzed for the remaining parcels (approximately 30,000 parcels)

Step 2: Grouped the remaining land use categories for further analysis. Many of these categories only had a few parcels associated with them after the urban and agriculture areas had been excluded.

- The "Residential" category included developed residential and other parcels that may have rural water demand associated with them. This makes up approximately 99% of the developed parcels.
  - The following four "Status" categories made up approximately 99% of the developed land use parcels: Developed Aerial – Res, Developed Aerial <= 20000 IMP – Res, Developed LUCode - HOX Res, and Developed LUCode – Res.
  - The other categories that are included in residential made up less than 1% of the total developed land use parcels: Developed Aerial – School, Developed Aerial <= 20000 IMP – Campground, Developed Aerial <= 20000 IMP - MH Park, Developed Aerial/LUCode - Govt Building, Developed LUCode – Apartments, Developed LUCode – Campground, Developed LUCode - Food Service, Developed LUCode - Medical Facility, Developed LUCode - MH Park, Developed LUCode - Mixed Living 5 or more units, Developed LUCode – Motel, Developed <= 1000 IMP – School, and Developed LUCode - Office
- The "Commercial/Industrial" category included developed commercial/industrial parcels that may have rural water demand associated with them. The total number of parcels in this category makes up less than 1% of the developed parcels. The following "Status" designations made up the commercial/industrial category.
  - Status = 'Developed <= 1000 IMP - Nuclear Power Plant' OR "Status" = 'Developed Aerial - Comm/Industrial' OR "Status" = 'Developed Aerial - Mining' OR "Status" = 'Developed Aerial - Oil Facility' OR "Status" = 'Developed Aerial <= 20000 IMP - Comm/Industrial' OR "Status" = 'Developed Aerial <= 20000 IMP - Manufacturing' OR "Status" = 'Developed Aerial <= 20000 IMP - Oil Facility' OR "Status" = 'Developed LUCode - Comm/Industrial' OR "Status" = 'Developed LUCode - Manufacturing'
- The "Other" category included areas where there was little or no rural water demand associated with the parcels. This category makes up less than 1% of the developed parcels remaining after subtracting agricultural and urban areas. The following "Status" designations were included in the category:
  - "Status" = 'Developed <= 1000 IMP - Cemetery' OR "Status" = 'Developed <= 1000 IMP - Dam' OR "Status" = 'Developed <= 1000 IMP - Lighthouse' OR "Status" = 'Developed <= 1000 IMP - Radar Site' OR "Status" = 'Developed <= 1000 IMP - Railroad' OR "Status" = 'Developed <= 1000 IMP - Recreation' OR "Status" = 'Developed <= 1000 IMP - Reservoir' OR "Status" = 'Developed <= 1000 IMP - Road' OR "Status" = 'Developed <= 1000 IMP - Sewer' OR "Status" = 'Developed <= 1000 IMP - Sludge Site' OR "Status" = 'Developed <= 1000 IMP - Utility' OR "Status" = 'Developed <= 1000 IMP - Water Facility' OR "Status" = 'Developed <= 1000 IMP - Water Pump' OR "Status" = 'Developed <= 1000 IMP - Water Tank' OR "Status" = 'Developed <= 1000 IMP - Well' OR "Status" = 'Developed Aerial - Recreation' OR "Status" = 'Developed

Aerial <= 20000 IMP - Dam' OR "Status" = 'Developed Aerial/LUCode - Recreation' OR "Status" = 'Developed LUCode - Automotive' OR "Status" = 'Developed LUCode - Church' OR "Status" = 'Developed LUCode - Grocery Store' OR "Status" = 'Developed LUCode - Mini Storage' OR "Status" = 'Developed LUCode - Recreation' OR "Status" = 'Developed LUCode - Warehouse' OR "Status" = 'Lake' OR "Status" = 'Railroad' OR "Status" = 'Road'

- The "Vacant" category included the followed Status designations established by the County. The majority of vacant parcels were classified by the County as 'Vacant <= 1000 IMP' and designated as parcels that could be developed. A summary of the vacant categories are as follows:

  – Residential Vacant: Status = 'Vacant <= 1000 IMP' OR "Status" = 'Vacant <= 1000 IMP - Campground' OR "Status" = 'Vacant <= 1000 IMP - School' OR "Status" = 'Vacant Aerial' OR "Status" = 'Vacant Aerial - Government' OR "Status" = 'Vacant Aerial <= 20000 IMP' OR "Status" = 'Vacant Aerial <= 20000 IMP - Government' OR "Status" = 'Vacant Aerial/LUCode - Government' OR "Status" = 'Vacant <= 1000 IMP - Government'

  – Other Vacant: Status = 'Vacant <= 1000 IMP - Common Area' OR "Status" = 'Vacant <= 1000 IMP - Marina' OR "Status" = 'Vacant <= 1000 IMP - Recreation' OR "Status" = 'Vacant Aerial <= 20000 IMP - Common Area' OR "Status" = 'Vacant Aerial/LUCode - Common Area'

Step 3: Divided the parcels by WPAs and assigned parcels. Some parcels were located in multiple WPAs.

- Recalculate acreages (Acge_Ind) for each parcel, including divided parcels.
- For those parcels where the ratio of new acreage over existing acreage was greater than 50%, an indicator was set to "1" (Acge_Ind).
- The divided parcels were assigned to the WPA where the majority of the parcel was located.

Step 4: Assigned a number of dwelling units for each residential and commercial/industrial category. The "Specific_P" and "Units" were defined by the County based on planning designations:

- For all existing developed parcels we assigned the following number of dwelling units (Exist_DU)

  – All "developed" = 1 (DU)
  – All "vacant" = 0 (DU)
  – Other = 0 (DU)

- For all future developed parcels we assigned the following number of dwelling units (Future_DU)

  – For "Specific_P" = FAR (Floor Area Ratio) & "Specific_P"= Note7-FAR, then Future_DU = 1 (DU). Since FAR numbers of units are not defined by a parcel, we have assumed that each FAR parcel will have 1 DU associated. This may result in an underestimate of future FAR units, but the total number of FAR units

  – All other "Specific_P":

    ▪ For "Units" > 0, then Future_DU="Units" [e.g. 2, 3]
    ▪ For "Units" = 0 AND "Exist_DU=0, then Future_DU=0

        - For "Units" = 0 AND "Exist_DU=1, then Future_DU=1

Step 5: Assigned a water duty factor (AF/DU) for each of the designated categories:

- Existing water duty factors were assigned (Ex_AF_DU):
  - Residential-Existing
    - 0.8 AFY/DU for planning area 1-7
    - 1.0 AFY/DU for planning area 8-16
  - Commercial Industrial
    - 1.5 AFY/DU for all planning areas
- Future water duty factors were assigned (Fut_AF_DU):
  - Residential-Future
    - 0.6 AFY/DU for planning area 1-7
    - 0.8 AFY/DU for planning area 8-16
  - Commercial Industrial
    - 1.5 AFY/DU for all planning areas

Step 6: Calculated the rural water demand for each WPA:

- Existing rural demand (Exist _AFY)
  - Multiply Exist_DU and Ex_AF_DU
- Future rural demand (Future _AFY)
  - Multiply Future_DU and Fut_AF_DU

Step 7: Summarized the rural water demand for each WPA:

- Created summary pivot tables from rural land use ArcGIS® layer
- Linked the pivot table to the rural demand summary excel file, as well as the total demand excel file.

References

Environmental Science Associates (ESA), San Luis Obispo County Water Demand Analysis Methodology and Results, December 2009.

San Luis Obispo County, San Luis Obispo County ArcGIS® Land Use Methodology Report, San Luis Obispo County, 2009.

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DRAFT memorandum

date December 17, 2009

to Jose Gutierrez, Carollo; Lou Carella, Carollo

from Justin Gragg, ESA; Annika Fain, ESA

subject SLO County MWP, Environmental Water Demand Estimates (Appendix D)

Purpose and Scope

San Luis Obispo County (County) has experienced multiple droughts, degradation of groundwater, and is faced with increasingly limited water supplies. The County is preparing an updated County Master Water Plan (MWP). The previous version of the MWP was completed in 1998. Since then, there have been many changes to the water resources within the County, including the completion of local and regional water management plans, formation of the Integrated Regional Water Management Plan (IRWMP), new water sources, new water users, and new water regulations. The updated MWP will incorporate these changes and provide all entities in the County with information to help effectively and efficiently manage water resources to protect ecosystems, public health and safety, and agriculture.

The updated MWP will include water supply and demand estimates for the entire County for existing and future conditions. Water demand estimates will be divided into the following categories: Agricultural, Urban, Rural, and Environmental. The following presents the approach, methodology, and results of the Environmental Water Demand (EWD) analysis for the County Watershed Planning Areas (WPAs) (as applicable).

Approach

For the purposes of the MWP, the term "Environmental Water Demand" is herein defined as the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. Of course, natural riverine ecosystems are highly complex and often very dynamic, being controlled by a number of physical processes, containing a variety of distinct habitat types, and supporting a wide variety of aquatic species. Thus, it is often necessary to identify a target species, or group of species, whose habitat requirements are well-enough defined to allow for the development of a reasonable estimation of the amount of water needed to support these species. Furthermore, the target species, or group of species, should be widely recognized as an indicator species (i.e., a species whose habitat requirements are sensitive enough to allow for successful identification of environmental problems, yet broad enough to adequately represent a wide array of aquatic species). For the purposes of the EWD analysis, the federally threatened south-central California coast steelhead (*Oncorhynchus mykiss*) was used as the primary indicator species. Although numerous other listed and non-listed native aquatic

species occur throughout the County, a large proportion of these species typically thrive in water bodies known to support steelhead. Furthermore, the threatened status of steelhead requires careful consideration of potential impacts to the species from future projects, including water development projects.

EWD is most commonly described and quantified in terms of instream flow requirements (i.e., the amount of water that must remain in the creek or river to support the various life stages of the target or indicator species). Numerous methodologies have been developed over recent decades for the purposes of quantifying instream flow requirements for steelhead and other salmonid species. These range from very simplistic estimations, such as the "Montana Method" (Tennant, 1976), to very site-specific and data-intensive assessments, such as the widely applied Instream Flow Incremental Methodology (IFIM) and its component Physical Habitat Simulation Model (PHABSIM), developed in the 1970's by the U.S. Fish and Wildlife Service (USFWS). The advantages and disadvantages of the various methodologies have been discussed extensively in the scientific literature and technical publications. We evaluated the relative merits and shortcomings of a number of available methodologies to determine the most appropriate approach to use for estimating EWD. Based on a number of selection criteria, including regional applicability, scientific support and justification, scale of the assessment (i.e., county-wide), and the feasibility and efficiency of the overall approach, we chose to apply a peer-reviewed methodology developed by Hatfield and Bruce (2000), *Predicting Salmonid Habitat-Flow Relationships for Streams from Western North America*.

The Hatfield and Bruce (2000) methodology is based on the authors' review of over 1,500 habitat-flow relationship curves developed during 127 site-specific PHABSIM studies from throughout the western United States. The authors developed predictions regarding the flow requirements for salmonids in this region and tested whether habitat-flow relationships for salmonids were related to watershed characteristics and geographic location. Their research found that mean annual discharge (MAD) was the best predictor for optimum flow, and that improvements in the predictive power of the regression model was sometimes possible with the addition of longitude and latitude coordinates (Hatfield and Bruce, 2000). As is the case in many regression-derived predictive models, a number of statistical uncertainties are inherent in this approach, and the authors provide a thorough discussion of the applicability of their methodology, including explicit cautions that site-specific follow-up assessments would be warranted in many situations. However, the largely planning-level focus of the Hatfield and Bruce (2000) approach appears to lend itself particularly well to the development of EWD estimates on a regional scale, recognizing that more detailed assessment will likely be required in support of future site-specific water development projects.

Implementation

During PHABSIM assessments, optimum flow ranges are typically developed for different life stages of the target species. Since their methodology is based on a review of numerous PHABSIM studies, Hatfield and Bruce (2000) also present optimum flow relationship equations for four distinct life stages of steelhead (i.e., fry, juvenile, adult, and spawning). Distinguishing between the flow needs of different life stages provides fisheries managers with the tools necessary to maximize suitable flow conditions according to life stage. However, this approach presents a minor difficulty for a broad-scale EWD assessment. For example, one life stage of steelhead, juveniles, is present year-round, and all four life stages may be present simultaneously during the spring. This raises the question of which optimal flow is in fact "optimal" at any given time of the year. In other words, which life stage equation should be used to determine yearly EWD? We elected to use two representative life stages in the assessment of EWD. If flow conditions are suitable for the adult life stage during the winter and early spring, then spawning can occur even though the physical spawning capacity of the water course in question may not be maximized. Similarly, if summer and fall flow conditions are suitable for juvenile steelhead, then the slower,

shallower channel margin habitat preferred by fry is typically also present. Therefore, we chose to use Hatfield and Bruce's (2000) adult equation to determine EWD during the adult/spawning season of December through April, and the juvenile equation to determine EWD during the May through November rearing period.

As discussed, we have selected steelhead as our target/indicator species, and have selected the adult and juvenile flow prediction equations to represent EWD on an annual basis. However, the County contains numerous minor, seasonal drainages, as well as larger watersheds (particularly within the eastern half of the County), that do not support steelhead and are unlikely to have supported the species historically. Although fish use of seasonal drainages is limited, these streams nevertheless serve an important ecological function for a number of other aquatic species, including amphibians, reptiles, and invertebrates. Moreover, many of these streams ultimately flow into larger drainages that do support fisheries resources, including steelhead. The same can be said for some of the larger watersheds not known to support (presently or historically) steelhead. A consistent, comparable, and broadly-applicable methodology for assessing EWD in relation to another species or habitat characteristic, for areas where steelhead may not have existed historically, was not available. However, it would not be reasonable to exclude such areas from the EWD estimate, which has a broad ecological connotation, based solely on whether or not steelhead are currently or were historically present. Further, relatively simple adjustments can be made to the values derived from the Hatfield and Bruce (2000) methodology to better account for the seasonality of flow within particular watersheds of WPAs. Therefore, it is assumed that, in general, the Hatfield and Bruce (2000) approach leads to a reasonable estimate of EWD (i.e., the amount of water required for optimum ecological function), regardless of whether or not the watershed of interest has historically supported steelhead.

Methods

The Hatfield and Bruce (2000) methodology requires MAD estimates for each watershed of interest. In order to reflect an accurate estimate of EWD, the MAD discharge should represent unimpaired (or natural) flow conditions and should be reflective of a relatively long time period (i.e., longer than 30 years). Mean daily flow values from stream gaging stations representative of long-term, unimpaired flow conditions were used to derive MAD estimates within the different WPAs. The overall methodology for the calculation and extrapolation of unimpaired MAD estimates generally follows the approaches presented by Ries and Friesz (2000) and Mann et al. (2004).

Selection of Index and Study Stations

Following the approach presented by Mann et al. (2004), candidate Index and Study-stations were identified from a list of existing and historic stream gaging locations within the County and adjacent counties. An Index-station is defined as a stream gage that is representative of long-term, unimpaired flows conditions (i.e., the mean daily flow record does not need to be adjusted or extended); a Study-station is defined as a stream gage that has a period of record shorter than desired but is representative of unimpaired flow conditions. As such, the record of mean daily flow values for the Study-station could be extended, or adjusted, to a period concurrent with that of an Index-station if a reliable and reasonable relationship exists. Thus, the differences between records would be due to differences in climatic or drainage basin characteristics and not to the fact that different periods of time are being represented. Most of the stations used in the analysis were those of the U.S. Geological Survey (USGS) and the remainder were installed or taken-over by the San Luis Obispo County Flood Control and Water Conservation District (District).

Index-stations were selected based upon having a period of record longer than 30 years, being representative of unimpaired flow conditions, and not exhibiting any long-term trends in the mean daily flow data. To determine

whether or not flow conditions could reasonably be considered unimpaired, the USGS Annual Water Data Report (WDR) was consulted for each gage location of interest for the last, or most recent, year of operation. If the USGS WDR indicated that there was no upstream regulation or diversion, the gage location was considered to be representative of unimpaired flow conditions. If the USGS WDR indicated that there was no upstream regulation but there were small diversions (e.g., small domestic diversion, stock ponds, etc.), or if the gage was one managed by the District (e.g., information equivalent to that found in the USGS WDR was not available), then the face-value amount of the upstream water rights (i.e., diversions) was determined through searching the State Water Resources Control Board's (SWRCB) Water Right Information Management System (WRIMS) (SWRCB, 2009). If the total face-value of the upstream permitted or licensed (or otherwise recognized by the SWRCB) diversions was less than one percent of the MAD of the gage of interest, then that location was considered to be representative of unimpaired flow conditions. Otherwise, the gage location was eliminated from further consideration in the analysis.[1]

Study-stations were selected based upon having a common (i.e., with the eventual study period) period of record longer than 8 years and being representative of unimpaired flow conditions. Determination of whether or not the Study-station mean daily flow record could reasonably be considered representative of unimpaired flow conditions followed the same methodology as described above for the Index-stations.

In order to adjust Study-station flows using the long-term Index-station records, tests for trends in the Index-station flow data were carried out. Improper regression or correlation can result if trends are evident in the long-term record for the region or for individual Index-stations (e.g., if trends are evident in the long-term Index-station records, then using these stations to adjust and extend short-term records may lead to substantially more error in the estimates). Trend tests involved first plotting mean annual flow versus year for each potential Index-station for qualitative detection of trends in the data. Kendall τ correlation tests (at the 0.05 significance level; Helsel and Hirsch, 2002) were then run on each Index-station's mean annual flows to quantitatively determine if any long-term trends were evident. No regional or individual station long-term trends were detected.

Based upon the criteria described above, two Index-stations were selected from the study area (i.e., the County and areas immediately adjacent): Lopez Creek near Arroyo Grande (Index-station 1; USGS 11141280) and the Nacimiento River below Sapaque Creek near Bryson (Index-station 2; USGS 11148900) (**Table D1; Figure D1**). The study period (i.e., the period for which the existing, average annual EWD estimates were made), based upon the Index-stations' common period of record, was selected as water year (WY) 1972-2008.[2] These two stations are at opposite extremes with respect to the overall flow regime (**Figure D2**): Lopez Creek is a relatively small, perennial stream and the Nacimiento River is a relatively large and ephemeral stream. Six Study-stations were ultimately selected from the study area: the Sisquoc River near Sisquoc (Study-station 1; USGS 11138500), Arroyo Grande above Phoenix Creek near Arroyo Grande (Study-station 2; USGS 11141150), Los Berros Creek near Nipomo (Study-station 3; USGS 11141600), Arroyo de la Cruz near San Simeon (Study-station 4; USGS 11142500), the Salinas River near Pozo (Study-station 5; USGS 11143500), and Salsipuedes Creek near Pozo (Study-station 6; USGS 11144200) (**Table D1; Figure D1**). For each Index and Study-station, information

[1] If there were many (i.e., more than 10) water rights upstream of a given station location, then that station was eliminated based solely upon the number of recorded water rights and, due to scope and budget limitations, the face-value of the water rights was not determined; nor was it determined whether or not the time period of the water right was concurrent with that of the station location of interest.

[2] A water year (WY) begins on October 1 of the previous year and ends on September 30 of the designated WY. For example, WY 2004 comprises the period of October 1, 2003 through September 30, 2004.

related to the USGS WDR and/or water rights is presented in **Attachment 1**. The results of the Kendall τ correlation tests on the mean annual flow values for Index-stations 1 and 2 are presented in **Attachment 2**.

TABLE D1
INDEX AND STUDY STATIONS

Station	Site Name	Site ID/no.	Drainage Area (sq. miles)	Flow Regime	Period of Record (Water Years)
Index Station 1 (Ind1)	Lopez Creek	USGS 11141280	20.9	Perennial	1968-2008
Index Station 2 (Ind2)	Nacimiento River	USGS 11148900	162.0	Ephemeral	1972-2008
Study Station 1 (Std1)	Sisquoc River	USGS 11138500	281.0	Perennial	1944-1999
Study Station 2 (Std2)	Arroyo Grande	USGS 11141150	13.5	Perennial	1968-1992
Study Station 3 (Std3)	Los Berros Creek	USGS 11141600	15.0	Perennial	1969-1978[a]
Study Station 4 (Std4)	Arroyo de la Cruz	USGS 11142500	41.2	Ephemeral	1951-1979
Study Station 5 (Std5)	Salinas River	USGS 11143500	70.3	Perennial	1943-1983
Study Station 6 (Std6)	Salsipuedes Creek	USGS 11144200	5.9	Ephemeral	1970-1983

[a] Based on data from the USGS for these water years

Regression Analysis and Mean Annual Discharge

Regression analysis was used to extend the mean daily flow record of each Study-station to cover the entire study period, WY 1972-2008. Study-station-Index-station pairings were based primarily on proximity of the stations to one another. In cases where the regression relationship was not strong or clear, both Index-stations were used in order to determine which one, if any, provided the most reliable relationship with respect to mean daily flow values.

Similar to the approach described by Ries and Friesz (2000), the relationship between Index-station and Study-station mean daily flow values were evaluated over a concurrent period (i.e., the period of overlap in the mean daily flow record of each station). First, the log-transformed (base 10), concurrent mean daily flow values at a Study-station were plotted versus the log-transformed mean daily flow values at the selected Index-station. A mathematical (i.e., ordinary least squares) correlation method was used when the subsequent relationship appeared linear, and a graphical method was used when the relationship illustrated curvature or otherwise appeared non-linear. Both methods assume that the relation between the mean daily flow at the Study-station and the Index-station remains constant with time (this is why trend testing of the Index-stations is important), and thus the relation between the concurrent period mean daily flows can be used to estimate flow statistics that represent long-term conditions. Once a reliable mathematical or graphical relationship was established, the statistic of interest (e.g., long-term MAD) for the Index-stations was used to compute the statistic of interest for each Study-station.

For the mathematical correlation between the log-transformed data, the regression coefficient of determination (R^2) for Index-station daily mean flows versus Study-station daily mean flows was required to be greater than 0.8 for concurrent flow data. The Index-station MAD (or statistic of interest) was then log-transformed, entered into the ordinary-least-squares regression equation, and the equation was subsequently solved for the Study-station value (e.g., MAD for WY 1972-2008).

For the graphical correlation, the method was applied by plotting the original (non-log) values of concurrent mean daily flows on log-log paper and drawing a smooth curve through the plotted points that appears to best fit the data (Ries and Friesz, 2000). Next, the MAD (or statistic of interest) for the Index-station was entered into the

curve of relation and the corresponding value for the Study-station was read from the graph. In this approach, the relationship between the two stations was most important for the range of flows near the MAD value for the Index-station. As such, if the relationship was not strong below this range (i.e., at the low end of the relation, as is often the case with log-log plots), the Study-station was not necessarily automatically discarded. Further, if an ordinary-least-squares regression line appeared to best describe the relationship of the data (i.e., if the ordinary-least-squares regression line was essentially the same as that which was drawn in by hand), then the subsequent regression equation was used to predict the MAD (or statistic of interest) value for the Study-station. If a reliable relationship (mathematical or graphical) did not exist the Study-station was discarded from further analysis. The Index-station-Study-station relations used in this analysis are included in **Attachment 3**.

Weighted Mean Annual Discharge

If the period of record for a Study-station comprised one-half or more of the study period, then a weighted MAD was calculated. In this case, the MAD was calculated from the Study-station mean daily flow values over the period of record, and the MAD for the remainder of the study period was calculated using the regression relation. The final MAD was calculated as a weighted average of the two values. For two Study-stations, the Sisquoc River (Study-station 1) and Arroyo Grande (Study-station 2), a weighted MAD was calculated (**Attachment 4**).

Extrapolation of Mean Annual Discharge Values

Once the unimpaired MAD estimates were calculated for the Index- and Study-stations, these values were then used to estimate the MAD for other watersheds and WPAs through extrapolation. To do this, the WPAs were further subdivided into individual sub-watershed areas (**Figure D3**). The delineation of sub-watersheds within the WPAs was done using ArcGIS® and was based upon the watershed delineation data provided by the District (San Luis Obispo County, 2000). The area (in square miles) and coordinates (longitude and latitude of the watershed mid-point) of each sub-watershed were also calculated within ArcGIS®. Sub-watershed areas were generally delineated (and aggregated) for the point at which the particular river or stream exited the WPA. As a result, the sub-watersheds draining east (to the Salinas River valley) are generally much larger than the coastal sub-watersheds. In some cases these larger sub-watershed areas were further sub-divided based upon a particular feature (e.g., lake or reservoir) or a particularly large tributary (e.g., Paso Robles Creek). It is important to note (as explained in more detail below, *Assumptions and Sources of Uncertainty*) that the unit optimal flow values derived from Hatfield and Bruce (2000), and ultimately the EWD estimates, are in part dependent upon the size of the drainage area (i.e., larger drainage areas have smaller unit optimal flow values, and vice versa).

Once the sub-watershed areas were delineated, the unit MAD (cubic feet per second [cfs] per square mile) was calculated for each of the Index- and Study-stations. The unit MAD values were then applied to each of the sub-watersheds in order to derive a MAD estimate for the entire sub-watershed based on its area. The extrapolation of Index- and Study-station unit MAD values to other sub-watershed areas was done qualitatively based upon proximity as well as similarities in mean annual rainfall (PRISM, 2007) and overall topography. In some cases, more than one unit MAD value was used for a given sub-watershed, in which case the unit MAD value ultimately used represented an average. Unit MAD values for the Index- and Study-stations, as well as for each of the sub-watersheds (including a list of which Index- and Study-station unit MAD values were used in the derivation of the unit MAD for each of the sub-watersheds), are listed in the tables comprising **Attachment 5**.

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the EWD analysis due to the lack of data and regional physiographic differences. No unimpaired flow data were available for WPAs 9, 10, 11, 14, and 15. All of the available unimpaired flow data were for stations in the western portion

of the County. Substantial differences in mean annual rainfall, topography, and geology precluded a reliable extrapolation of the Index- and Study-station unit MAD values to these eastern areas of the County.

Environmental Water Demand

Once the MAD was calculated for each sub-watershed, the equations presented by Hatfield and Bruce (2000) were used to derive the EWD estimate (as described above). An EWD flow value was calculated for the period December through April (i.e., adult demand) and for the period May through November (i.e., juvenile demand). The following are the relevant equations as presented by Hatfield and Bruce (2000):

$$\log_e(optimum\_juvenile\_flow) = -8.482 + 0.593 \cdot \log_e(MAD) + 2.555 \cdot \log_e(latitude)$$

$$\log_e(optimum\_adult\_flow) = 1.105 + 0.737 \cdot \log_e(MAD)$$

Where optimum flow and MAD are in cfs and latitude is in decimal degrees.

For each period the flow value was converted to a total volume (i.e., acre-feet) based upon the average number of days within the period, and the two volumes were then summed to derive a total annual EWD estimate for each sub-watershed. For the juvenile period (May through November) an additional adjustment was made to better account for the generally ephemeral nature of the study area (i.e., assuming that all days in the May through November period would normally have flow under natural, or unimpaired, conditions is not reflective of the regional hydrologic regime). At the scale of the sub-watersheds used in this analysis (i.e., relatively large), most (if not all) of the coastal watersheds, as well as the larger watersheds to the east, are naturally ephemeral. Those reaches that are perennial tend to be in the small, headwater-type watersheds (though there are exceptions within the study area, such as the Sisquoc River – though the Sisquoc River is not within the County). Based upon the mean daily flow data for the Nacimiento River Index-station, which indicate that the river is dry approximately 30 percent of the time, a regional adjustment was made to the annual EWD estimates: it was assumed that all of the sub-watersheds were dry for 30 percent of the time (i.e., for approximately 110 days). The optimum flow values and EWD estimates for each sub-watershed and WPA are presented in the tables of Attachment 5; the annual EWD estimates for each WPA are also summarized below in **Table D2**.

TABLE D2
MEAN ANNUAL DISCHARGE AND ENVIRONMENTAL WATER DEMAND ESTIMATES

WPA (#)[a]	WPA Name	Estimated Unimpaired Mean Annual Discharge (MAD) (AFY)	Environmental Water Demand (EWD) (AFY)
1	San Simeon	104,491	72,975
2	Cambria	87,049	51,463
3	Cayucos	33,340	26,162
4	Morro Bay	43,433	27,878
5	Los Osos	8,199	7,045
6	SLO/Avila	45,816	33,034
7	South Coast	49,103	32,956
8	Huasna Valley	34,217	25,019
12	Santa Margarita	46,633	32,850
13	Atascadero/Templeton	74,088	41,006
16	Nacimiento	251,124[b]	108,390 [b]

[a] The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the EWD analysis due to the lack of data and regional physiographic differences. No unimpaired flow data were available for WPAs 9, 10, 11, 14, and 15.

[b] Estimates include the watershed area for the Nacimiento River Index-station (162 square miles); though the Index-station is within WPA 16, most of the watershed area is not.

Assumptions and Sources of Uncertainty

The following list summarizes some key assumptions and sources of uncertainty for the presented estimates of EWD:

- The EWD estimates presented here are based upon the habitat requirements of steelhead (*Oncorhynchus mykiss*), and this approach and methodology therefore assumes that the steelhead is an appropriate target species for the study area;

- For the Nacimiento River Index-station and most of the Study-stations, the coefficient of variation (CV)[3] for the mean daily flows was beyond the range (i.e., higher than) reported by Hatfield and Bruce (2000) for their study sites. This reflects the fact that the flow regime in our study area (i.e., the County and surrounding areas) is generally more ephemeral and variable than that of the collective region analyzed by Hatfield and Bruce (2000) Therefore, extrapolation using the MAD at these stations may lead to overestimates of the optimal flow value (and, subsequently, the EWD) for the sub-watershed areas. This is because the MAD value at these stations is disproportionately influenced by large flows and these watersheds are predominantly ephemeral;

- A few of the sub-watershed areas had estimated MAD values below the range reported by Hatfield and Bruce (2000) for their study sites (i.e., below 4.1 cfs). The reliability of the Hatfield and Bruce (2000) methodology in this low range of MAD values is unclear and has not been tested. In fact, the optimal flow values calculated for the very small sub-watershed areas in our study area (i.e., those with estimated MAD values less than approximately 10 cfs) were often greater than the estimated MAD values, in which case the annual EWD was assumed to equal the MAD.

- The prediction intervals for the Hatfield and Bruce (2000) equations are relatively large, primarily reflecting statistical uncertainty and other sources of error;

- Regional variation in rainfall is not quantitatively accounted for in extrapolating the mean annual discharge estimates for the Index and Study-stations to other areas;

- As stated in the scope of work, the estimates of EWD presented here do not include "geomorphic" flows. In other words, in calculating an annual EWD for a given watershed, consideration was not given to the particular range of flows typically responsible for the maintenance of channel form and, ultimately, function over time;

- The unit EWD (i.e., demand per unit area, such as acre-feet per square mile) is, in part, dependent upon the drainage area to the point of interest, and the relationship between unit EWD and drainage area is generally not linear. In some cases the unit EWD is inversely related to drainage area (i.e., the EWD volume per unit area *increases* as drainage area *decreases*). As a result, dividing large watershed areas (e.g., WPA 12 or 13) into smaller sub-watersheds, and subsequently summing the EWD estimates from the smaller sub-watersheds, would likely lead to a higher total EWD estimate for the overall watershed area of interest. It is assumed that the delineation of sub-watersheds employed here is reasonable for the purpose of estimating EWD.

- Planning-level assessments such as this one do not take the complexity of natural systems into consideration. While our results provide a reasonable and scientifically supported estimation of Environmental Water Demand for the purposes of water planning, site- and project-specific instream flow requirements should be completed for all future water development projects.

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[3] The coefficient of variation (CV) is a statistical measure of variability and is calculated as the standard deviation divided by the mean.

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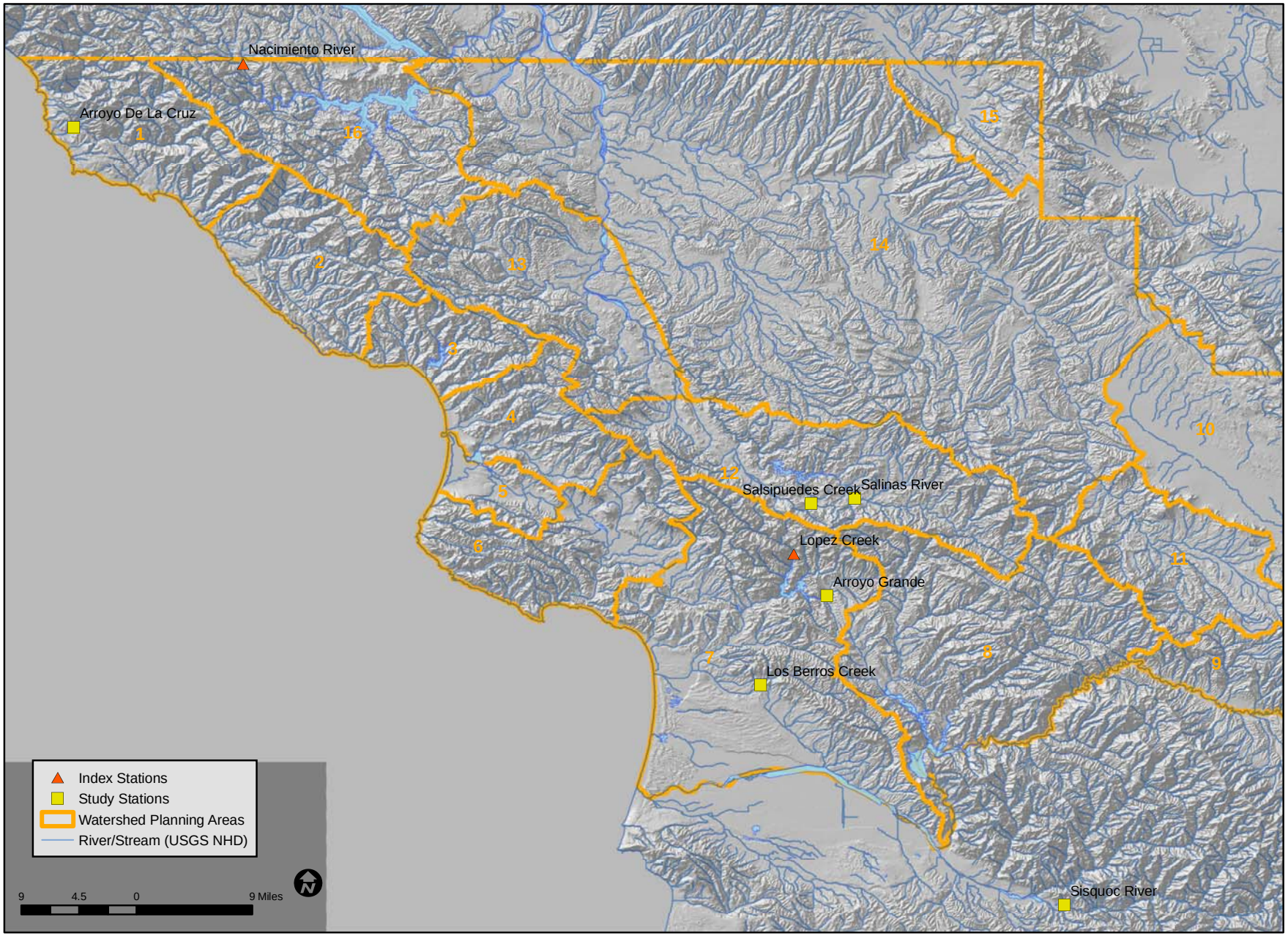
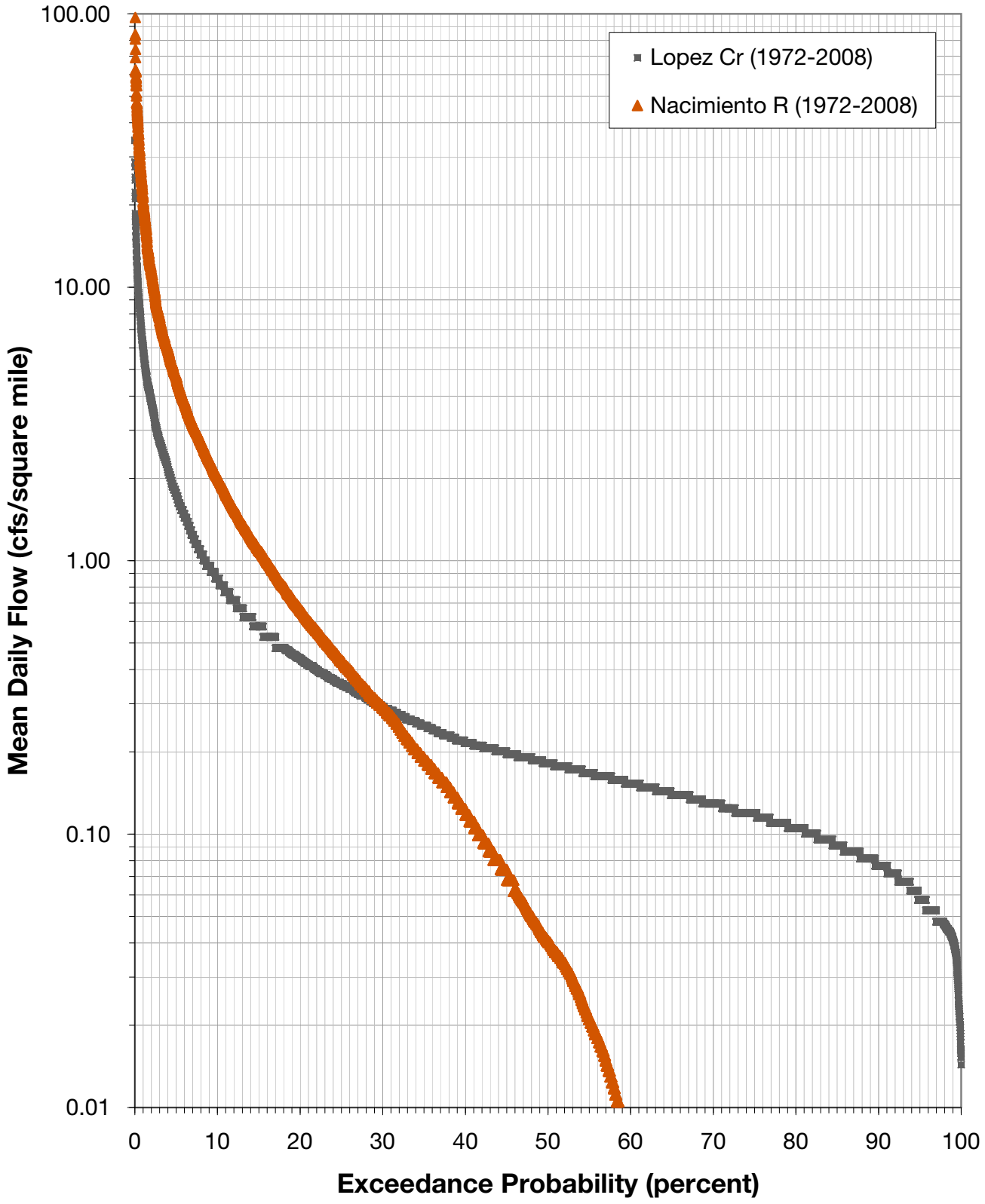


SOURCE: USGS, 2009; ESA, 2009; USEPA, 2005; San Obispo County, 2000 & 2009

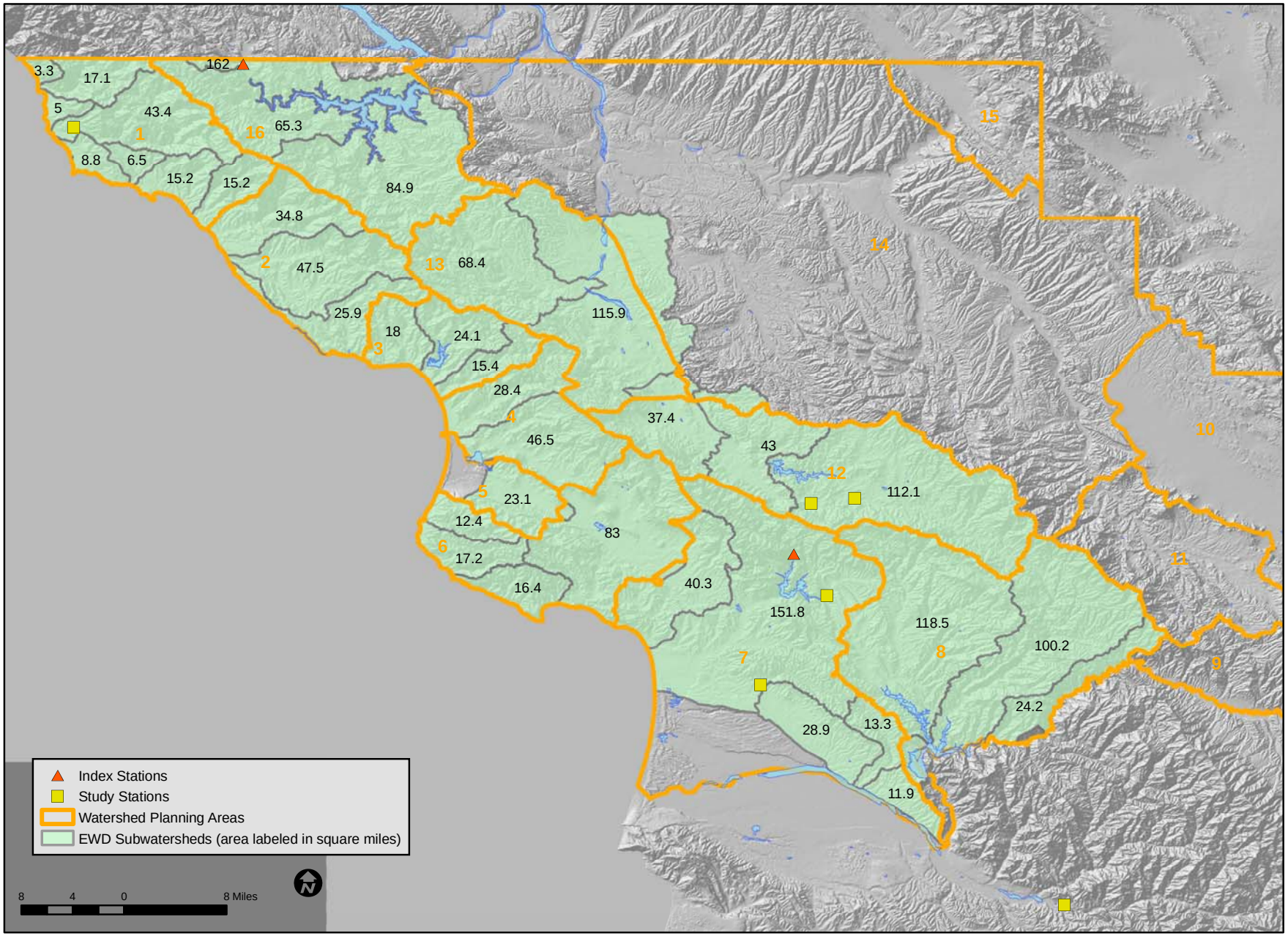
Figure D1
Index and Study Stream Gage Stations



SOURCE: USGS, 2009; ESA, 2009

Figure D2

Mean Daily Flow at Index Station Stream Gages



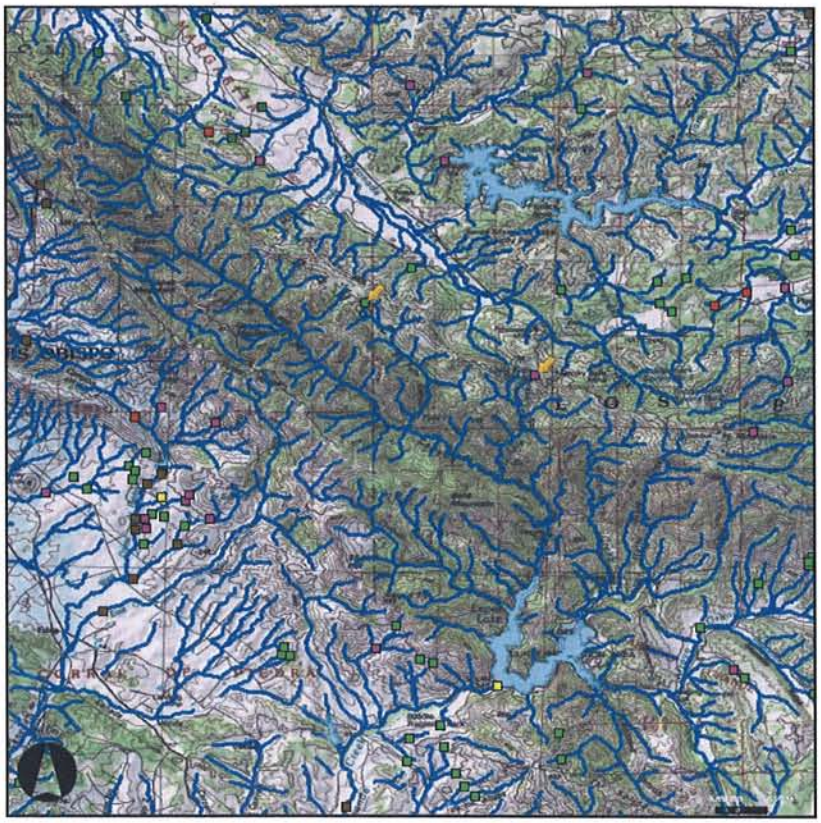
SOURCE: USGS, 2009; ESA, 2009; San Obispo County, 2000 & 2009

Figure D3

Subwatersheds Used for Environmental Water Demand Analysis

Attachment 1

USGS Water Data Reports and SWRCB Water Rights Information



water rights upstream of
USGS 11141280
Lopez Cr

Points of Diversion (1)

Points of Diversion (1)

Points of Diversion
- Adjudicated
- Cancelled
- Certified
- Claimed
- Claimed - Local Oversight
- Inactive
- Licensed

Points of Diversion (continued)
- Pending
- Permitted
- Registered
- Revoked
- State Filing
- Temporary

Lakes (1:24K)

Rivers (1:24K)

NGS USA Topographic Maps

Select POD Results

Points of Diversion (1)

POD_ID	APPL_ID	POD_NUM	APPL_POD	TOWNSHIP_NUMBER	TOWNSHIP_DIRECTION	RANGE_NUMBER	RANGE_DIRECTION	SECTION_NUMBER	SECTION_CLASSIFIER	QUARTER	QUARTER
894	A021268	01	A021268_01	30	S	14	E	28		SE	SE

Select POD Results

Points of Diversion (1)

POD_ID	APPL_ID	POD_NUM	APPL_POD	TOWNSHIP_NUMBER	TOWNSHIP_DIRECTION	RANGE_NUMBER	RANGE_DIRECTION	SECTION_NUMBER	SECTION_CLASSIFIER	QUARTER	QUARTER
22513	C005030	01	C005030_01	30	S	13	E	24		NW	NW

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	A021268
Appliation Rec'd Date	
Application Acceptance Date	5/1/1963
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	U S LOS PADRES NATL FOREST
Primary Owner Entity Type	Federal Government
Water Right Type	Appropriative
Face Value Amount	1.1
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	1000
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0
Max Use Ann	1.1
Year First Use	0
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Federal Government
Last Name	U S LOS PADRES NATL FOREST
Middle Name	
First Name	
Mailing Street Number	
Mailing Street Name	6755 HOLLISTER AVE STE 150
Mailing Address Line2	
Mailing City	GOLETA
Mailing State	CA
Mailing Zip	93117
Mailing Country	USA
Mailing Foreign Code	
Billing Street Number	
Billing Street Name	6755 HOLLISTER AVE STE 150
Billing Address Line2	
Billing City	GOLETA
Billing State	CA
Billing Zip	93117

	Billing Country	USA
	Billing Foreign Code	
	Phone	8059686640
Status		
	Current Status	Licensed
Uses		
	Use Code	Domestic
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	1-Jan
	Direct Div Season End Date	31-Dec
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
Uses		
	Use Code	Fire Protection
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	1-Jan
	Direct Div Season End Date	31-Dec
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0

Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0

Use Seasons

Direct Div Season Begin Date	1-Jan
Direct Div Season End Date	31-Dec
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	
Storage Season End Date	
Season Storage Amount (AFA)	0
Collection Season Status (New)	Migrated from old WRIMS data

Uses

Use Code	Fish and Wildlife Protection and/or Enhancement
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0

Use Seasons

Direct Div Season Begin Date	1-Jan
Direct Div Season End Date	31-Dec
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	
Storage Season End Date	
Season Storage Amount (AFA)	0
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	1000
Direct Div Ac Ft	0
Amount Storage	0
POD Max Dd	1000
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A021268
Object ID	177519
Pod Number	1
Has Opod	N
Appl Pod	A021268_01
podId	894

	County	San Luis Obispo
	Parcel Number	
	Sp Zone	5
	North Coord	2295832
	East Coord	5822486
	Quarter Quarter	SE
	Quarter	SE
	Section Classifier	
	Section Number	28
	Township Number	30
	Township Direction	S
	Range Number	14
	Range Direction	E
	Meridian	21
	Location Method	DD_NE
	Source Name	LITTLE FALLS SPRING
	TribDesc	
	Watershed	ESTERO BAY
	Quad Map Name	SANTA MARGARITA LAKE
Permit		
	Permit ID	14230
	Water Right Description	Migrated data from old WRIMS system.
	Issue Date	1/3/1964
	Construction Completed by	
	Planned Project Completion Date	12/1/1966
License		
	License ID	8823
	Issue Date	1/3/1969
	Licensee Reporting Cycle	
	First Licensee Report Year	
License Terms		
	Term ID	
	Version Number	1
	Term Short Description	
	DWR Specific Clauses	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C005030
Appliation Rec'd Date	12/31/1997
Application Acceptance Date	12/31/1997
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	L CARL GRIEB
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	1
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	1
Max Use Ann	1
Year First Use	1969
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	1/5/1999
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	GRIEB
Middle Name	CARL
First Name	L

Parties

Name Type	Non-Primary Owner
Effective From Date	1/5/1999
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	GRIEB
	Middle Name	L
	First Name	BARBARA
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	120
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	1
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Jan
	Storage Season End Date	31-Dec
	Season Storage Amount (AFA)	1
	Collection Season Status (New)	Migrated from old WRIMS data
POD		
	POD Number	1
	POD Unit	Gallons per Day
	POD Status	Active
	Direct Div Amount	0
	Direct Div Ac Ft	0
	Amount Storage	1
	POD Max Dd	0
	Source Max Dd Unit	Gallons per Day
	POD Max Storage	1
	Source Max Storage Unit	Gallons per Day
	Diversion Code	Diversion point
	Diversion Type	Storage
	Storage Type	Diversion point
POD GIS Maintained Data		
	Appl ID	C005030
	Object ID	177563

Pod Number	1
Has Opod	Y
Appl Pod	C005030_01
podId	22513
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2303733
East Coord	5808086
Quarter Quarter	NW
Quarter	NW
Section Classifier	
Section Number	24
Township Number	30
Township Direction	S
Range Number	13
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	ARROYO GRANDE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	5030
Issue Date	7/24/2000
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002567
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	ANDREW W MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.1
Max Use Ann	0
Year First Use	1968
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MANKINS
Middle Name	B
First Name	LESTER

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	

Salutation	
Entity Type	Individual
Last Name	MCREYNOLDS
Middle Name	W
First Name	ANDREW

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MCREYNOLDS
Middle Name	M
First Name	CHRISTA

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MANKINS
Middle Name	B
First Name	LESTER

Status

Current Status	Certified

Uses

Use Code	Stockwatering
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0.1

Use Seasons

Direct Div Season Begin Date	
Direct Div Season End Date	
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	1-Nov
Storage Season End Date	1-May

Season Storage Amount (AFA)	0.1
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.1
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002567
Object ID	177366
Pod Number	1
Has Opod	N
Appl Pod	C002567_01
podId	32416
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2262231
East Coord	5845386
Quarter Quarter	SW
Quarter	NW
Section Classifier	
Section Number	32
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2567
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002568
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	ANDREW W MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.7
Max Use Ann	0
Year First Use	1965
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MCREYNOLDS
Middle Name	W
First Name	ANDREW

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	

Salutation	
Entity Type	Individual
Last Name	MANKINS
Middle Name	B
First Name	LESTER

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MCREYNOLDS
Middle Name	M
First Name	CHRISTA

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MANKINS
Middle Name	B
First Name	LESTER

Status

Current Status	Certified

Uses

Use Code	Stockwatering
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0.7

Use Seasons

Direct Div Season Begin Date	
Direct Div Season End Date	
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	1-Nov
Storage Season End Date	1-May

Season Storage Amount (AFA)	0.7
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.7
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002568
Object ID	177377
Pod Number	1
Has Opod	N
Appl Pod	C002568_01
podId	19077
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2263931
East Coord	5839486
Quarter Quarter	NW
Quarter	NW
Section Classifier	
Section Number	31
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2568
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002569
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	ANDREW W MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.1
Max Use Ann	0
Year First Use	1962
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MANKINS
Middle Name	B
First Name	LESTER

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	M
	First Name	CHRISTA
Parties		
	Name Type	Primary Owner
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	W
	First Name	ANDREW
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.1
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May

Season Storage Amount (AFA)	0.1
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.1
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002569
Object ID	177426
Pod Number	1
Has Opod	N
Appl Pod	C002569_01
podId	26526
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2273732
East Coord	5840986
Quarter Quarter	SE
Quarter	NW
Section Classifier	
Section Number	19
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2569
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002570
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	ANDREW W MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.2
Max Use Ann	0
Year First Use	1962
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MCREYNOLDS
Middle Name	W
First Name	ANDREW

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Parties		
	Name Type	Non-Primary Owner
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	M
	First Name	CHRISTA
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.2
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May

Season Storage Amount (AFA)	0.2
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.2
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002570
Object ID	177445
Pod Number	1
Has Opod	N
Appl Pod	C002570_01
podId	13496
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2275931
East Coord	5845386
Quarter Quarter	SW
Quarter	SW
Section Classifier	
Section Number	17
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2570
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002571
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	ANDREW W MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.2
Max Use Ann	0
Year First Use	1962
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MANKINS
Middle Name	B
First Name	LESTER

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	M
	First Name	CHRISTA
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Parties		
	Name Type	Primary Owner
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	W
	First Name	ANDREW
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.2
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May

Season Storage Amount (AFA)	0.2
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.2
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002571
Object ID	177451
Pod Number	1
Has Opod	N
Appl Pod	C002571_01
podId	32417
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2276431
East Coord	5845686
Quarter Quarter	SW
Quarter	SW
Section Classifier	
Section Number	17
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2571
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002572
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	CHRISTA M MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.1
Max Use Ann	0
Year First Use	1962
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MCREYNOLDS
Middle Name	M
First Name	CHRISTA

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Parties		
	Name Type	Non-Primary Owner
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	W
	First Name	ANDREW
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.1
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May

Season Storage Amount (AFA)	0.1
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.1
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002572
Object ID	177442
Pod Number	1
Has Opod	N
Appl Pod	C002572_01
podId	13497
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2275531
East Coord	5845386
Quarter Quarter	SW
Quarter	SW
Section Classifier	
Section Number	17
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2572
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002573
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	ANDREW W MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.4
Max Use Ann	0
Year First Use	1962
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MANKINS
Middle Name	B
First Name	LESTER

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	M
	First Name	CHRISTA
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Parties		
	Name Type	Primary Owner
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	W
	First Name	ANDREW
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.4
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May

Season Storage Amount (AFA)	0.4
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.4
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002573
Object ID	177420
Pod Number	1
Has Opod	N
Appl Pod	C002573_01
podId	3761
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2271331
East Coord	5849686
Quarter Quarter	SE
Quarter	SE
Section Classifier	
Section Number	20
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2573
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002574
Appliation Rec'd Date	
Application Acceptance Date	1/3/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	LESTER B MANKINS
Agent Entity Type	Individual
Primary Owner	ANDREW W MCREYNOLDS
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.9
Max Use Ann	0
Year First Use	1965
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	MCREYNOLDS
Middle Name	W
First Name	ANDREW

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	MCREYNOLDS
	Middle Name	M
	First Name	CHRISTA
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	MANKINS
	Middle Name	B
	First Name	LESTER
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.9
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May

Season Storage Amount (AFA)	0.9
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0.9
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C002574
Object ID	177408
Pod Number	1
Has Opod	N
Appl Pod	C002574_01
podId	7769
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2269232
East Coord	5835886
Quarter Quarter	NE
Quarter	NW
Section Classifier	P
Section Number	25
Township Number	31
Township Direction	S
Range Number	14
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	ARROYO GRANDE CREEK
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2574
Issue Date	5/18/1979
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002682
Appliation Rec'd Date	
Application Acceptance Date	1/5/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	BOB LANGSTON
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.1
Max Use Ann	0
Year First Use	1962
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	LANGSTON
Middle Name	
First Name	MOLLY

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	LANGSTON
	Middle Name	
	First Name	BOB
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.1
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May
	Season Storage Amount (AFA)	0.1
	Collection Season Status (New)	Migrated from old WRIMS data
POD		
	POD Number	1
	POD Unit	Gallons per Day
	POD Status	Active
	Direct Div Amount	0
	Direct Div Ac Ft	0
	Amount Storage	0.1
	POD Max Dd	0
	Source Max Dd Unit	Gallons per Day
	POD Max Storage	0
	Source Max Storage Unit	Gallons per Day
	Diversion Code	Diversion point
	Diversion Type	Direct Diversion
	Storage Type	Diversion point
POD GIS Maintained Data		
	Appl ID	C002682
	Object ID	177405

Pod Number	1
Has Opod	N
Appl Pod	C002682_01
podId	15254
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2268331
East Coord	5851186
Quarter Quarter	SE
Quarter	NW
Section Classifier	
Section Number	28
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2682
Issue Date	5/14/1980
Licensee Reporting Cycle	
First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C002683
Appliation Rec'd Date	
Application Acceptance Date	1/5/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	BOB LANGSTON
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	0.1
Max Use Ann	0
Year First Use	1954
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	LANGSTON
Middle Name	
First Name	BOB

Parties

Name Type	Non-Primary Owner
Effective From Date	9/15/1994
Effective To Date	

	Salutation	
	Entity Type	Individual
	Last Name	LANGSTON
	Middle Name	
	First Name	MOLLY
Status		
	Current Status	Certified
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0.1
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	1-May
	Season Storage Amount (AFA)	0.1
	Collection Season Status (New)	Migrated from old WRIMS data
POD		
	POD Number	1
	POD Unit	Gallons per Day
	POD Status	Active
	Direct Div Amount	0
	Direct Div Ac Ft	0
	Amount Storage	0.1
	POD Max Dd	0
	Source Max Dd Unit	Gallons per Day
	POD Max Storage	0
	Source Max Storage Unit	Gallons per Day
	Diversion Code	Diversion point
	Diversion Type	Direct Diversion
	Storage Type	Diversion point
POD GIS Maintained Data		
	Appl ID	C002683
	Object ID	177407

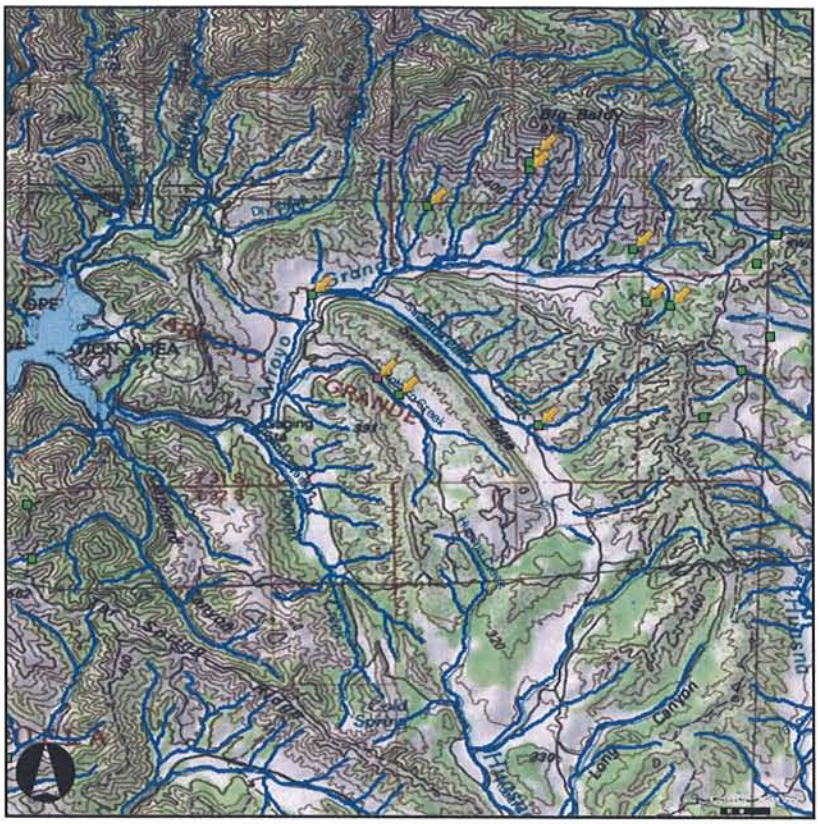
Pod Number	1
Has Opod	N
Appl Pod	C002683_01
podId	19086
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2268531
East Coord	5850186
Quarter Quarter	SW
Quarter	NW
Section Classifier	
Section Number	28
Township Number	31
Township Direction	S
Range Number	15
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNST
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	TAR SPRING RIDGE

Permit

Permit ID	
Water Right Description	
Issue Date	
Construction Completed by	
Planned Project Completion Date	

License

License ID	2683
Issue Date	5/14/1980
Licensee Reporting Cycle	
First Licensee Report Year	



water rights upstream of
USGS 11141150
Arroyo Grande AB Phoenix Cr

Points of Diversion (11)

Points of Diversion
- Adjudicated
- Cancelled
- Certified
- Claimed
- Claimed - Local Oversight
- Inactive
- Licensed
- Pending

Points of Diversion (continued)
- Permitted
- Registered
- Revoked
- State Filing
- Temporary

Lakes (1:24K)

Rivers (1:24K)

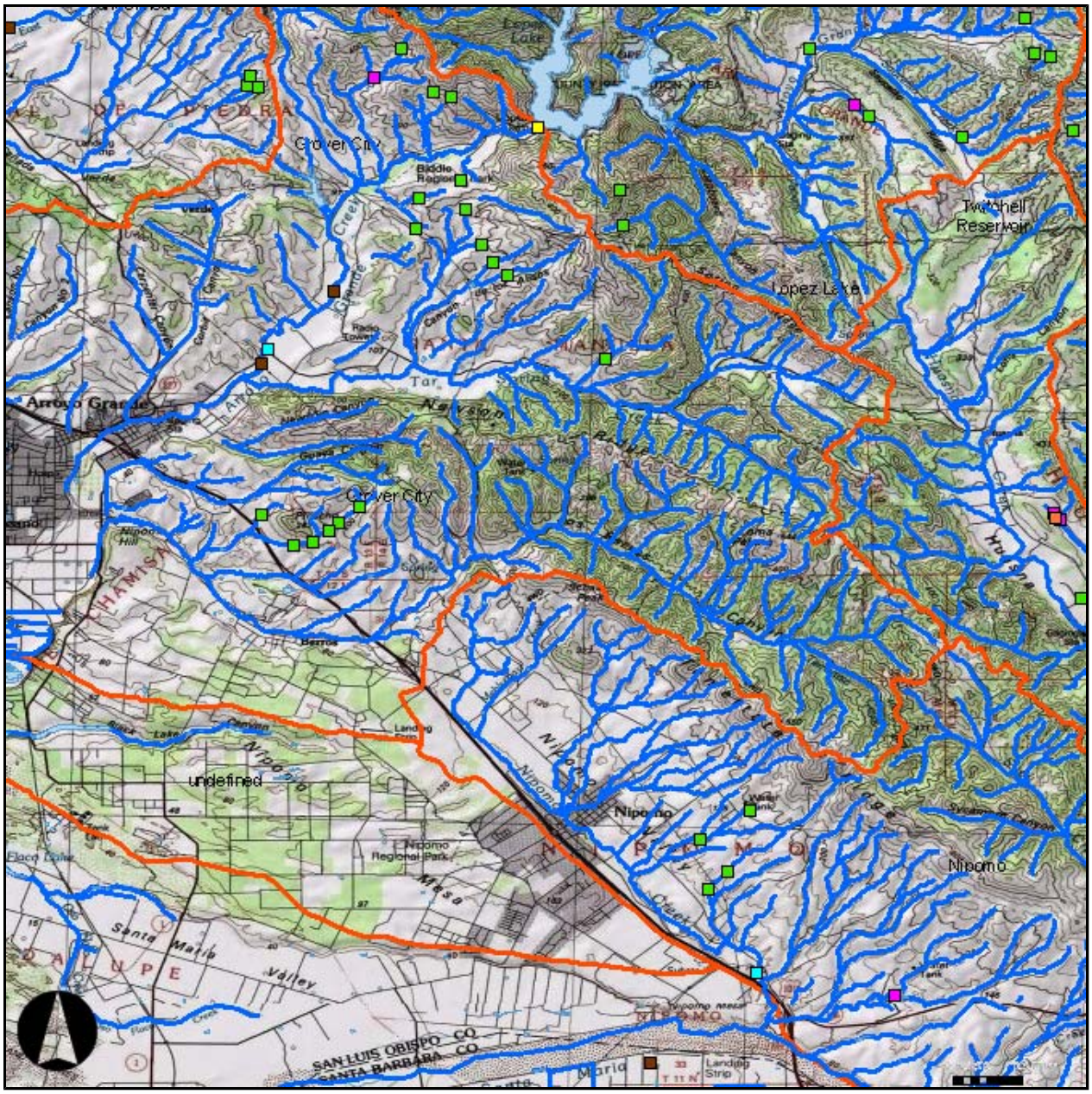
NGS USA Topographic Maps

Select POD Results

Points of Diversion (11)

POD_ID	APPL_ID	POD_NUM	APPL_POD	TOWNSHIP_NUMBER	TOWNSHIP_DIRECTION	RANGE_NUMBER	RANGE_DIRECTION	SECTION_NUMBER	SECTION_CLASSIFIER	QUARTER	QUARTER
32623	A025698	01	A025698_01	31	S	14	E	25	P	SE	SE
32416	C002567	01	C002567_01	31	S	15	E	32		NW	SW
19077	C002568	01	C002568_01	31	S	15	E	31		NW	NW
26526	C002569	01	C002569_01	31	S	15	E	19		NW	SE
13496	C002570	01	C002570_01	31	S	15	E	17		SW	SW
32417	C002571	01	C002571_01	31	S	15	E	17		SW	SW
13497	C002572	01	C002572_01	31	S	15	E	17		SW	SW
3761	C002573	01	C002573_01	31	S	15	E	20		SE	SE
7769	C002574	01	C002574_01	31	S	14	E	25	P	NW	NE

15254	C002682	01	C002682_01	31	S	15	E	28		NW	SE
19086	C002683	01	C002683_01	31	S	15	E	28		NW	SW



Points of Diversion
- Adjudicated
- Cancelled
- Certified
- Claimed
- Claimed - Local Oversight
- Inactive
- Licensed
- Pending
- Permitted
- Registered

Points of Diversion (continued)
- Revoked
- State Filing
- Temporary

Lakes (1:24K)

Rivers (1:24K)

Super Planning Watersheds

NGS USA Topographic Maps

water rights upstream of
USGS 11141600/SLO 05
Los Berros Cr
(no identified upstream rights)

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	A019108
Appliation Rec'd Date	
Application Acceptance Date	11/24/1959
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	STATE WATER RESOURCES CONTROL BOARD
Primary Owner Entity Type	Government (State/Municipal)
Water Right Type	Appropriative
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	0
Appl Fee Amt Recd	0
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	80000
Max Use Ann	0
Year First Use	0
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Government (State/Municipal)
Last Name	STATE WATER RESOURCES CONTROL BOARD
Middle Name	
First Name	
Mailing Street Number	
Mailing Street Name	PO BOX 2000
Mailing Address Line2	
Mailing City	SACRAMENTO
Mailing State	CA
Mailing Zip	95812
Mailing Country	USA
Mailing Foreign Code	
Billing Street Number	
Billing Street Name	PO BOX 2000
Billing Address Line2	
Billing City	SACRAMENTO
Billing State	CA
Billing Zip	95812
Billing Country	USA
Billing Foreign Code	

	Phone	
Status		
	Current Status	State Filing
Uses		
	Use Code	Irrigation
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	70940
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
Uses		
	Use Code	Municipal
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Uses		
	Use Code	Recreational
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Uses		
	Use Code	Domestic
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Uses		
	Use Code	Industrial

Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0

Uses

Use Code	Stockwatering
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	80000
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	80000
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A019108
Object ID	179182
Pod Number	1
Has Opod	N
Appl Pod	A019108_01
podId	34643
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2463437
East Coord	5586781
Quarter Quarter	NE
Quarter	NE
Section Classifier	
Section Number	35
Township Number	25
Township Direction	S
Range Number	6
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	ARROYO DE LA CRUZ
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PIEDRAS BLANCAS

Permit

Permit ID
Water Right Description
Issue Date
Construction Completed by
Planned Project Completion Date

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text		10/14/2009
Application			
	Application ID	A020026A	
	Appliation Rec'd Date		3/9/1961
	Application Acceptance Date		3/9/1961
	Notice Date		
	Protest		
	Number of Protests		0
	Agent Name	MARTIN CEPKAUSKAS	
	Agent Entity Type	Individual	
	Primary Owner	HEARST HOLDINGS INC	
	Primary Owner Entity Type	Government (State/Municipal)	
	Water Right Type	Appropriative	
	Face Value Amount		70
	Face Value Units	Acre-feet per Year	
	Appl Fee Amount		0
	Appl Fee Amt Recd		0
	Max DD Appl		0.27
	Max DD Units	Cubic Feet per Second	
	Max DD Ann		70
	Max Storage		0
	Max Use Ann		70
	Year First Use		0
	Billing Determination	Not Determined	
	Power Discount %		0
	FERC #		
	FERC Facility		
	Initial 401 Certification Start		
	Initial 401 Certification End		
	Renewed 401 Certification Start		
	Renewed 401 Certification End		
	Kilowatts Face Plate		0
Parties			
	Name Type	Agent	
	Effective From Date		12/13/2001
	Effective To Date		
	Salutation		
	Entity Type	Individual	
	Last Name	CEPKAUSKAS	
	Middle Name		
	First Name	MARTIN	
Parties			
	Name Type	Primary Owner	
	Effective From Date		6/26/1997
	Effective To Date		
	Salutation		
	Entity Type	Government (State/Municipal)	
	Last Name	HEARST HOLDINGS INC	
	Middle Name		

	First Name		
	Mailing Street Number		
	Mailing Street Name	5 THIRD ST STE 200	
	Mailing Address Line2		
	Mailing City	SAN FRANCISCO	
	Mailing State	CA	
	Mailing Zip		94103
	Mailing Country	USA	
	Mailing Foreign Code		
	Billing Street Number		
	Billing Street Name	5 3RD ST STE 200	
	Billing Address Line2		
	Billing City	SAN FRANCISCO	
	Billing State	CA	
	Billing Zip		94103
	Billing Country	USA	
	Billing Foreign Code		
	Phone		4157778196
Status			
	Current Status	Licensed	
Uses			
	Use Code	Irrigation	
	Use Status (New)	Migrated from old WRIMS data	
	Use Population		0
	Use Net Acreage		27
	Use Gross Acreage		0
	Use Direct Diversion Annual Amount (AFA)		70
	Use Direct Diversion Rate (New)		0
	Use Direct Diversion Rate Units		
	Use Storage Amount (New) (AFA)		0
Use Seasons			
	Direct Div Season Begin Date		1-Apr
	Direct Div Season End Date		31-Oct
	Season Direct Div Rate (New)		0
	Season Direct Div Rate Units		
	Season Direct Div Annual Amount (New) (AFA)		0
	Direct Div Season Status (New)	Migrated from old WRIMS data	
	Storage Season Begin Date		
	Storage Season End Date		
	Season Storage Amount (AFA)		0
	Collection Season Status (New)	Migrated from old WRIMS data	
Uses			
	Use Code	Domestic	
	Use Status (New)	Migrated from old WRIMS data	
	Use Population		0
	Use Net Acreage		0
	Use Gross Acreage		0
	Use Direct Diversion Annual Amount (AFA)		70
	Use Direct Diversion Rate (New)		0
	Use Direct Diversion Rate Units		
	Use Storage Amount (New) (AFA)		0
Use Seasons			

	Direct Div Season Begin Date		1-Jan
	Direct Div Season End Date		31-Dec
	Season Direct Div Rate (New)		0
	Season Direct Div Rate Units		
	Season Direct Div Annual Amount (New) (AFA)		0
	Direct Div Season Status (New)	Migrated from old WRIMS data	
	Storage Season Begin Date		
	Storage Season End Date		
	Season Storage Amount (AFA)		0
	Collection Season Status (New)	Migrated from old WRIMS data	
Uses			
	Use Code	Stockwatering	
	Use Status (New)	Migrated from old WRIMS data	
	Use Population		0
	Use Net Acreage		0
	Use Gross Acreage		0
	Use Direct Diversion Annual Amount (AFA)		70
	Use Direct Diversion Rate (New)		0
	Use Direct Diversion Rate Units		
	Use Storage Amount (New) (AFA)		0
Use Seasons			
	Direct Div Season Begin Date		1-Jan
	Direct Div Season End Date		31-Dec
	Season Direct Div Rate (New)		0
	Season Direct Div Rate Units		
	Season Direct Div Annual Amount (New) (AFA)		0
	Direct Div Season Status (New)	Migrated from old WRIMS data	
	Storage Season Begin Date		
	Storage Season End Date		
	Season Storage Amount (AFA)		0
	Collection Season Status (New)	Migrated from old WRIMS data	
Uses			
	Use Code	Irrigation	
	Use Status (New)	Migrated from old WRIMS data	
	Use Population		0
	Use Net Acreage		0
	Use Gross Acreage		0
	Use Direct Diversion Annual Amount (AFA)		0
	Use Direct Diversion Rate (New)		0
	Use Direct Diversion Rate Units		
	Use Storage Amount (New) (AFA)		0
POD			
	POD Number		1
	POD Unit	Cubic Feet per Second	
	POD Status	Active	
	Direct Div Amount		0.27
	Direct Div Ac Ft		70
	Amount Storage		0
	POD Max Dd		0.27
	Source Max Dd Unit	Cubic Feet per Second	
	POD Max Storage		0
	Source Max Storage Unit	Cubic Feet per Second	
	Diversion Code	Diversion point	

	Diversion Type	Storage
	Storage Type	Diversion point

POD GIS Maintained Data

POD

	POD Number	1
	POD Unit	Cubic Feet per Second
	POD Status	Active
	Direct Div Amount	0.27
	Direct Div Ac Ft	70
	Amount Storage	0
	POD Max Dd	0.27
	Source Max Dd Unit	Cubic Feet per Second
	POD Max Storage	0
	Source Max Storage Unit	Cubic Feet per Second
	Diversion Code	Diversion point
	Diversion Type	Storage
	Storage Type	Diversion point

POD GIS Maintained Data

Permit

	Permit ID	14902
	Water Right Description	Migrated data from old WRIMS system.
	Issue Date	10/28/1965
	Construction Completed by	
	Planned Project Completion Date	

License

	License ID	010924A
	Issue Date	6/26/1997
	Licensee Reporting Cycle	
	First Licensee Report Year	

License Terms

	Term ID	5
	Version Number	1
	Term Short Description	
	DWR Specific Clauses	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	A020026B
Appliation Rec'd Date	3/9/1961
Application Acceptance Date	3/9/1961
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	CALIF DEPT OF PARKS & RECREATION
Primary Owner Entity Type	Government (State/Municipal)
Water Right Type	Appropriative
Face Value Amount	60
Face Value Units	Acre-feet per Year
Appl Fee Amount	0
Appl Fee Amt Recd	0
Max DD Appl	0.14
Max DD Units	Cubic Feet per Second
Max DD Ann	60
Max Storage	0
Max Use Ann	60
Year First Use	0
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	6/26/1997
Effective To Date	
Salutation	
Entity Type	Government (State/Municipal)
Last Name	CALIF DEPT OF PARKS & RECREATION
Middle Name	
First Name	
Mailing Street Number	
Mailing Street Name	PO BOX 942896
Mailing Address Line2	
Mailing City	SACRAMENTO
Mailing State	CA
Mailing Zip	94296
Mailing Country	USA
Mailing Foreign Code	
Billing Street Number	
Billing Street Name	PO BOX 942896
Billing Address Line2	
Billing City	SACRAMENTO

	Billing State	CA
	Billing Zip	94296
	Billing Country	USA
	Billing Foreign Code	
	Phone	
Status		
	Current Status	Licensed
Uses		
	Use Code	Irrigation
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	19
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	55.2
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	1-Apr
	Direct Div Season End Date	31-Dec
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
Uses		
	Use Code	Domestic
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	7.2
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	1-Jan
	Direct Div Season End Date	31-Dec
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
Uses		
	Use Code	Irrigation
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0

Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0

POD

POD Number	1
POD Unit	Cubic Feet per Second
POD Status	Active
Direct Div Amount	0.14
Direct Div Ac Ft	60
Amount Storage	0
POD Max Dd	0.14
Source Max Dd Unit	Cubic Feet per Second
POD Max Storage	0
Source Max Storage Unit	Cubic Feet per Second
Diversion Code	Diversion point
Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A020026B
Object ID	179063
Pod Number	1
Has Opod	N
Appl Pod	A020026B_01
podId	11447
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2451536
East Coord	5641183
Quarter Quarter	SE
Quarter	NE
Section Classifier	
Section Number	10
Township Number	26
Township Direction	S
Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP (AKA PHELAN SPRING)
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

POD

POD Number	1
POD Unit	Cubic Feet per Second
POD Status	Active
Direct Div Amount	0.14
Direct Div Ac Ft	60
Amount Storage	0
POD Max Dd	0.14
Source Max Dd Unit	Cubic Feet per Second

POD Max Storage	0
Source Max Storage Unit	Cubic Feet per Second
Diversion Code	Diversion point
Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A020026B
Object ID	179109
Pod Number	1
Has Opod	Y
Appl Pod	A020026B_01
podId	40134
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2454336
East Coord	5639783
Quarter Quarter	SW
Quarter	SW
Section Classifier	
Section Number	4
Township Number	26
Township Direction	S
Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP (AKA CHISHOLM SPRING)
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

Permit

Permit ID	14902
Water Right Description	Migrated data from old WRIMS system.
Issue Date	10/28/1965
Construction Completed by	
Planned Project Completion Date	

License

License ID	010924B
Issue Date	6/26/1997
Licensee Reporting Cycle	
First Licensee Report Year	

License Terms

Term ID	5
Version Number	1
Term Short Description	
DWR Specific Clauses	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	A025881
Appliation Rec'd Date	
Application Acceptance Date	12/6/1978
Notice Date	
Protest	
Number of Protests	0
Agent Name	MARTIN CEPKAUSKAS
Agent Entity Type	Individual
Primary Owner	HEARST HOLDINGS INC
Primary Owner Entity Type	Government (State/Municipal)
Water Right Type	Appropriative
Face Value Amount	1607
Face Value Units	Acre-feet per Year
Appl Fee Amount	24
Appl Fee Amt Recd	24
Max DD Appl	5.06
Max DD Units	Cubic Feet per Second
Max DD Ann	1607
Max Storage	0
Max Use Ann	1607
Year First Use	0
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Agent
Effective From Date	12/13/2001
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	CEPKAUSKAS
Middle Name	
First Name	MARTIN

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Government (State/Municipal)
Last Name	HEARST HOLDINGS INC
Middle Name	
First Name	
Mailing Street Number	
Mailing Street Name	5 THIRD ST STE 200
Mailing Address Line2	
Mailing City	SAN FRANCISCO
Mailing State	CA
Mailing Zip	94103
Mailing Country	USA
Mailing Foreign Code	
Billing Street Number	
Billing Street Name	5 3RD ST STE 200
Billing Address Line2	
Billing City	SAN FRANCISCO
Billing State	CA
Billing Zip	94103
Billing Country	USA
Billing Foreign Code	
Phone	4157778196

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	12/12/2001
Salutation	
Entity Type	Individual
Last Name	BATTAGLIA
Middle Name	M
First Name	PHILLIP

Status

Current Status	Permitted

Uses

Use Code	Irrigation
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	300
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	1607
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0

Use Seasons

Direct Div Season Begin Date	1-Jan

Direct Div Season End Date	31-Dec
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	
Storage Season End Date	
Season Storage Amount (AFA)	0
Collection Season Status (New)	Migrated from old WRIMS data

Uses

Use Code	Municipal
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	1607
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	0

Use Seasons

Direct Div Season Begin Date	1-Jan
Direct Div Season End Date	31-Dec
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	
Storage Season End Date	
Season Storage Amount (AFA)	0
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Cubic Feet per Second
POD Status	Active
Direct Div Amount	5.06
Direct Div Ac Ft	1607
Amount Storage	0
POD Max Dd	5.06
Source Max Dd Unit	Cubic Feet per Second
POD Max Storage	0
Source Max Storage Unit	Cubic Feet per Second
Diversion Code	Diversion point
Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A025881
Object ID	179178
Pod Number	1
Has Opod	N
Appl Pod	A025881_01
podId	9745
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2462937
East Coord	5589681
Quarter Quarter	SW
Quarter	NE
Section Classifier	P
Section Number	36
Township Number	25
Township Direction	S
Range Number	6
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	ARROYO DE LA CRUZ UNDERFLOW
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PIEDRAS BLANCAS

Permit

Permit ID	19247
Water Right Description	Migrated data from old WRIMS system.
Issue Date	5/29/1984
Construction Completed by	
Planned Project Completion Date	12/31/1906

Permit Terms

Term ID	140500
Version Number	1
Term Short Description	Monitoring Plans
DWR Specific Clauses	

Permit Terms

Term ID	999
Version Number	1
Term Short Description	
DWR Specific Clauses	

Permit Terms

Term ID	60999
Version Number	1
Term Short Description	
DWR Specific Clauses	

Permit Terms

Term ID	29

	Version Number	1
	Term Short Description	Permit Term 29 - Water Management/Water Conservation, Irrigation System Evaluation (Note - Not carried over into license)
	DWR Specific Clauses	

Permit Terms

	Term ID	400500
	Version Number	1
	Term Short Description	Invasive Species
	DWR Specific Clauses	

Permit Terms

	Term ID	290101
	Version Number	1
	Term Short Description	
	DWR Specific Clauses	

Permit Terms

	Term ID	600
	Version Number	1
	Term Short Description	
	DWR Specific Clauses	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	A027126
Appliation Rec'd Date	
Application Acceptance Date	11/25/1981
Notice Date	
Protest	
Number of Protests	0
Agent Name	MARTIN CEPKAUSKAS
Agent Entity Type	Individual
Primary Owner	HEARST HOLDINGS INC
Primary Owner Entity Type	Government (State/Municipal)
Water Right Type	Appropriative
Face Value Amount	72
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	72
Max Use Ann	72
Year First Use	0
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Agent
Effective From Date	9/15/1994
Effective To Date	3/29/1995
Salutation	
Entity Type	Individual
Last Name	BATTAGLIA
Middle Name	M
First Name	PHILLIP

Parties

Name Type	Agent
Effective From Date	12/13/2001
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	CEPKAUSKAS
Middle Name	
First Name	MARTIN

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Government (State/Municipal)
Last Name	HEARST HOLDINGS INC
Middle Name	

First Name	
Mailing Street Number	
Mailing Street Name	5 THIRD ST STE 200
Mailing Address Line2	
Mailing City	SAN FRANCISCO
Mailing State	CA
Mailing Zip	94103
Mailing Country	USA
Mailing Foreign Code	
Billing Street Number	
Billing Street Name	5 3RD ST STE 200
Billing Address Line2	
Billing City	SAN FRANCISCO
Billing State	CA
Billing Zip	94103
Billing Country	USA
Billing Foreign Code	
Phone	4157778196

Parties

Name Type	Agent
Effective From Date	3/30/1995
Effective To Date	12/12/2001
Salutation	
Entity Type	Individual
Last Name	COOKE
Middle Name	J
First Name	A

Status

Current Status	Permitted

Uses

Use Code	Stockwatering
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	72

Use Seasons

Direct Div Season Begin Date	
Direct Div Season End Date	
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	1-Nov
Storage Season End Date	31-Mar
Season Storage Amount (AFA)	72
Collection Season Status (New)	Migrated from old WRIMS data

Uses

Use Code	Domestic
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	72

Use Seasons

Direct Div Season Begin Date	
Direct Div Season End Date	
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	1-Nov
Storage Season End Date	31-Mar
Season Storage Amount (AFA)	72
Collection Season Status (New)	Migrated from old WRIMS data

Uses

Use Code	Irrigation
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	35
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	72

Use Seasons

Direct Div Season Begin Date	
Direct Div Season End Date	
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	1-Nov
Storage Season End Date	31-Mar
Season Storage Amount (AFA)	72
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	72
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	72
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A027126
Object ID	179062
Pod Number	1
Has Opod	N
Appl Pod	A027126_01
podId	4164
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2451536
East Coord	5641183
Quarter Quarter	SE
Quarter	NW
Section Classifier	P
Section Number	10
Township Number	26
Township Direction	S

Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP (AKA PHELAN SPRING)
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	72
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	72
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A027126
Object ID	179106
Pod Number	1
Has Opod	Y
Appl Pod	A027126_01
podId	39440
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2454336
East Coord	5639573
Quarter Quarter	SW
Quarter	SW
Section Classifier	P
Section Number	4
Township Number	26
Township Direction	S
Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP (AKA CHISOLM SPRING)
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

Permit

Permit ID	20775
Water Right Description	Migrated data from old WRIMS system.
Issue Date	2/23/1995
Construction Completed by	
Planned Project Completion Date	

Permit Terms

Term ID	22	
Version Number	1	
Term Short Description	Term 22	Right of Access

DWR Specific Clauses

Permit Terms

Term ID	000005J
Version Number	1
Term Short Description	
DWR Specific Clauses	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	A027212
Appliation Rec'd Date	
Application Acceptance Date	2/17/1982
Notice Date	
Protest	
Number of Protests	0
Agent Name	MARTIN CEPKAUSKAS
Agent Entity Type	Individual
Primary Owner	HEARST HOLDINGS INC
Primary Owner Entity Type	Government (State/Municipal)
Water Right Type	Appropriative
Face Value Amount	65
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0.41
Max DD Units	Cubic Feet per Second
Max DD Ann	65
Max Storage	0
Max Use Ann	65
Year First Use	0
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Government (State/Municipal)
Last Name	HEARST HOLDINGS INC
Middle Name	
First Name	
Mailing Street Number	
Mailing Street Name	5 THIRD ST STE 200
Mailing Address Line2	
Mailing City	SAN FRANCISCO
Mailing State	CA
Mailing Zip	94103
Mailing Country	USA
Mailing Foreign Code	
Billing Street Number	
Billing Street Name	5 3RD ST STE 200

	Billing Address Line2	
	Billing City	SAN FRANCISCO
	Billing State	CA
	Billing Zip	94103
	Billing Country	USA
	Billing Foreign Code	
	Phone	4157778196
Parties		
	Name Type	Agent
	Effective From Date	9/15/1994
	Effective To Date	12/12/2001
	Salutation	
	Entity Type	Individual
	Last Name	BATTAGLIA
	Middle Name	M
	First Name	PHILLIP
Parties		
	Name Type	Agent
	Effective From Date	12/13/2001
	Effective To Date	
	Salutation	
	Entity Type	Individual
	Last Name	CEPKAUSKAS
	Middle Name	
	First Name	MARTIN
Status		
	Current Status	Permitted
Uses		
	Use Code	Irrigation
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	46
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	65
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	1-Dec
	Direct Div Season End Date	30-Apr
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
Uses		

	Use Code	Domestic
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	65
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	1-Dec
	Direct Div Season End Date	30-Apr
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
Uses		
	Use Code	Stockwatering
	Use Status (New)	Migrated from old WRIMS data
	Use Population	0
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	65
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	0
Use Seasons		
	Direct Div Season Begin Date	1-Dec
	Direct Div Season End Date	30-Apr
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	
	Storage Season End Date	
	Season Storage Amount (AFA)	0
	Collection Season Status (New)	Migrated from old WRIMS data
POD		
	POD Number	1
	POD Unit	Cubic Feet per Second
	POD Status	Active
	Direct Div Amount	0.41
	Direct Div Ac Ft	0
	Amount Storage	0
	POD Max Dd	0.41
	Source Max Dd Unit	Cubic Feet per Second
	POD Max Storage	0
	Source Max Storage Unit	Cubic Feet per Second
	Diversion Code	Diversion point

Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A027212
Object ID	179108
Pod Number	1
Has Opod	Y
Appl Pod	A027212_01
podId	6678
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2454336
East Coord	5639783
Quarter Quarter	SW
Quarter	SW
Section Classifier	
Section Number	4
Township Number	26
Township Direction	S
Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP (AKA CHISOLM SPRING)
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

POD

POD Number	1
POD Unit	Cubic Feet per Second
POD Status	Active
Direct Div Amount	0.41
Direct Div Ac Ft	0
Amount Storage	0
POD Max Dd	0.41
Source Max Dd Unit	Cubic Feet per Second
POD Max Storage	0
Source Max Storage Unit	Cubic Feet per Second
Diversion Code	Diversion point
Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A027212
Object ID	179065
Pod Number	1
Has Opod	N
Appl Pod	A027212_01
podId	38644
County	San Luis Obispo
Parcel Number	
Sp Zone	5

North Coord	2451536
East Coord	5641183
Quarter Quarter	SE
Quarter	NW
Section Classifier	
Section Number	10
Township Number	26
Township Direction	S
Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP (AKA PHELAN SPRING)
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

Permit

Permit ID	20906
Water Right Description	Migrated data from old WRIMS system.
Issue Date	3/18/1997
Construction Completed by	
Planned Project Completion Date	

Permit Terms

Term ID	5
Version Number	1
Term Short Description	
DWR Specific Clauses	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	A029851
Appliation Rec'd Date	
Application Acceptance Date	11/1/1990
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	CALIF DEPT OF PARKS & RECREATION
Primary Owner Entity Type	Government (State/Municipal)
Water Right Type	Appropriative
Face Value Amount	2.8
Face Value Units	Acre-feet per Year
Appl Fee Amount	100
Appl Fee Amt Recd	100
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	2.8
Max Use Ann	2.8
Year First Use	0
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Government (State/Municipal)
Last Name	CALIF DEPT OF PARKS & RECREATION
Middle Name	
First Name	
Mailing Street Number	
Mailing Street Name	PO BOX 942896
Mailing Address Line2	
Mailing City	SACRAMENTO
Mailing State	CA
Mailing Zip	94296
Mailing Country	USA
Mailing Foreign Code	
Billing Street Number	
Billing Street Name	PO BOX 942896
Billing Address Line2	
Billing City	SACRAMENTO

	Billing State	CA
	Billing Zip	94296
	Billing Country	USA
	Billing Foreign Code	
	Phone	9163221948

Status

	Current Status	Permitted

Uses

	Use Code	Domestic
	Use Status (New)	Migrated from old WRIMS data
	Use Population	6000
	Use Net Acreage	0
	Use Gross Acreage	0
	Use Direct Diversion Annual Amount (AFA)	0
	Use Direct Diversion Rate (New)	0
	Use Direct Diversion Rate Units	
	Use Storage Amount (New) (AFA)	2.8

Use Seasons

	Direct Div Season Begin Date	
	Direct Div Season End Date	
	Season Direct Div Rate (New)	0
	Season Direct Div Rate Units	
	Season Direct Div Annual Amount (New) (AFA)	0
	Direct Div Season Status (New)	Migrated from old WRIMS data
	Storage Season Begin Date	1-Nov
	Storage Season End Date	31-Mar
	Season Storage Amount (AFA)	2.8
	Collection Season Status (New)	Migrated from old WRIMS data

POD

	POD Number	1
	POD Unit	Gallons per Day
	POD Status	Active
	Direct Div Amount	0
	Direct Div Ac Ft	0
	Amount Storage	2.8
	POD Max Dd	0
	Source Max Dd Unit	Gallons per Day
	POD Max Storage	2.8
	Source Max Storage Unit	Gallons per Day
	Diversion Code	Diversion point
	Diversion Type	Storage
	Storage Type	Diversion point

POD GIS Maintained Data

	Appl ID	A029851
	Object ID	179110
	Pod Number	1
	Has Opod	Y
	Appl Pod	A029851_01
	podId	933
	County	San Luis Obispo
	Parcel Number	
	Sp Zone	5
	North Coord	2454386

East Coord	5639758
Quarter Quarter	SW
Quarter	SW
Section Classifier	
Section Number	4
Township Number	26
Township Direction	S
Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	0
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	2.8
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Storage
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	A029851
Object ID	179060
Pod Number	1
Has Opod	N
Appl Pod	A029851_01
podId	29525
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2451486
East Coord	5640983
Quarter Quarter	SE
Quarter	NW
Section Classifier	
Section Number	10
Township Number	26
Township Direction	S
Range Number	8
Range Direction	E
Meridian	21
Location Method	DD_NE
Source Name	UNSP
TribDesc	
Watershed	ESTERO BAY
Quad Map Name	PEBBLESTONE SHUT-IN

Permit

Permit ID	20924
Water Right Description	Migrated data from old WRIMS system.
Issue Date	6/19/1997
Construction Completed by	
Planned Project Completion Date	12/31/2002

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C000612
Appliation Rec'd Date	
Application Acceptance Date	12/30/1976
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	WALTER M WARREN
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	2.5
Max Use Ann	0
Year First Use	1958
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	WARREN
Middle Name	M
First Name	WALTER

Status

Current Status	Certified

Uses

Use Code	Stockwatering
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	2.5

Use Seasons

Direct Div Season Begin Date	
Direct Div Season End Date	
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	1-Nov
Storage Season End Date	1-May
Season Storage Amount (AFA)	2.5
Collection Season Status (New)	Migrated from old WRIMS data

POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	2.5
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C000612
Object ID	179058
Pod Number	1
Has Opod	Y
Appl Pod	C000612_01
podId	2016
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2451486
East Coord	5640983
Quarter Quarter	NW
Quarter	NW

	Section Classifier	
	Section Number	10
	Township Number	26
	Township Direction	S
	Range Number	8
	Range Direction	E
	Meridian	21
	Location Method	DD_NE
	Source Name	UNST
	TribDesc	
	Watershed	ESTERO BAY
	Quad Map Name	PEBBLESTONE SHUT-IN
Permit		
	Permit ID	
	Water Right Description	
	Issue Date	
	Construction Completed by	
	Planned Project Completion Date	
License		
	License ID	612
	Issue Date	4/14/1978
	Licensee Reporting Cycle	
	First Licensee Report Year	

SWRCB	Division of Water Rights - e-WRIMS 1) Select Columns A, B, and C) 2) Format / Column / Autofit Selection 3) Left Justify Column Text	10/14/2009

Application

Application ID	C000613
Appliation Rec'd Date	
Application Acceptance Date	12/30/1976
Notice Date	
Protest	
Number of Protests	0
Agent Name	
Agent Entity Type	
Primary Owner	WALTER M WARREN
Primary Owner Entity Type	Individual
Water Right Type	Stockpond
Face Value Amount	0
Face Value Units	Acre-feet per Year
Appl Fee Amount	10
Appl Fee Amt Recd	10
Max DD Appl	0
Max DD Units	Gallons per Day
Max DD Ann	0
Max Storage	1
Max Use Ann	0
Year First Use	1950
Billing Determination	Not Determined
Power Discount %	0
FERC #	
FERC Facility	
Initial 401 Certification Start	
Initial 401 Certification End	
Renewed 401 Certification Start	
Renewed 401 Certification End	
Kilowatts Face Plate	0

Parties

Name Type	Primary Owner
Effective From Date	9/15/1994
Effective To Date	
Salutation	
Entity Type	Individual
Last Name	WARREN
Middle Name	M
First Name	WALTER

Status

Current Status	Certified

Uses

Use Code	Stockwatering
Use Status (New)	Migrated from old WRIMS data
Use Population	0
Use Net Acreage	0
Use Gross Acreage	0
Use Direct Diversion Annual Amount (AFA)	0
Use Direct Diversion Rate (New)	0
Use Direct Diversion Rate Units	
Use Storage Amount (New) (AFA)	1

Use Seasons

Direct Div Season Begin Date	
Direct Div Season End Date	
Season Direct Div Rate (New)	0
Season Direct Div Rate Units	
Season Direct Div Annual Amount (New) (AFA)	0
Direct Div Season Status (New)	Migrated from old WRIMS data
Storage Season Begin Date	1-Nov
Storage Season End Date	1-May
Season Storage Amount (AFA)	1
Collection Season Status (New)	Migrated from old WRIMS data

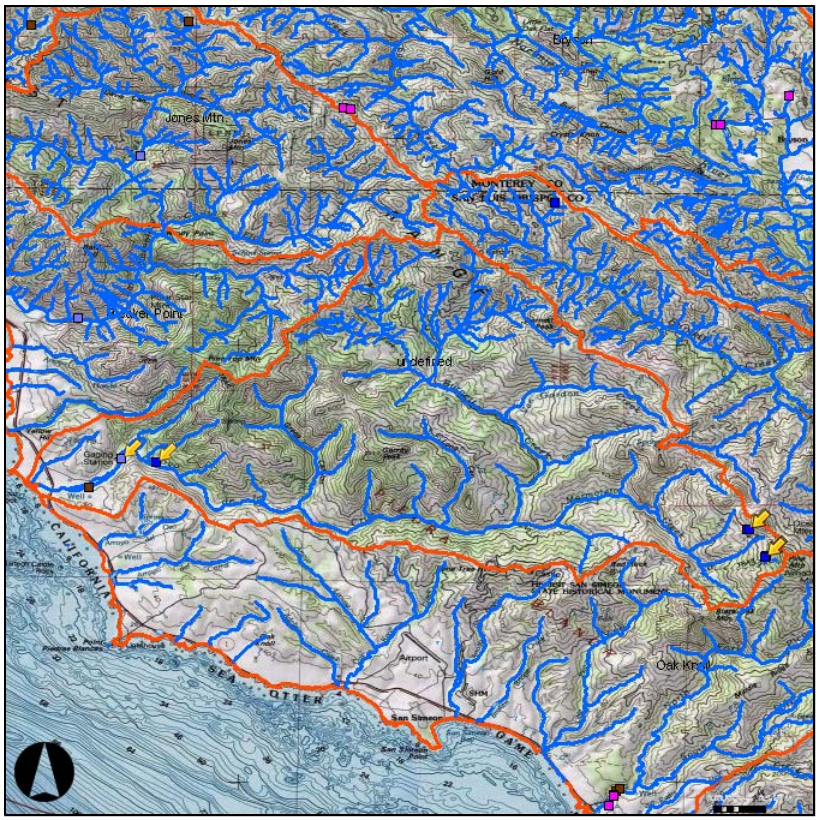
POD

POD Number	1
POD Unit	Gallons per Day
POD Status	Active
Direct Div Amount	0
Direct Div Ac Ft	0
Amount Storage	1
POD Max Dd	0
Source Max Dd Unit	Gallons per Day
POD Max Storage	0
Source Max Storage Unit	Gallons per Day
Diversion Code	Diversion point
Diversion Type	Direct Diversion
Storage Type	Diversion point

POD GIS Maintained Data

Appl ID	C000613
Object ID	179059
Pod Number	1
Has Opod	Y
Appl Pod	C000613_01
podId	13524
County	San Luis Obispo
Parcel Number	
Sp Zone	5
North Coord	2451486
East Coord	5640983
Quarter Quarter	NW
Quarter	SE

	Section Classifier	
	Section Number	10
	Township Number	26
	Township Direction	S
	Range Number	8
	Range Direction	E
	Meridian	21
	Location Method	DD_NE
	Source Name	UNST
	TribDesc	
	Watershed	ESTERO BAY
	Quad Map Name	PEBBLESTONE SHUT-IN
Permit		
	Permit ID	
	Water Right Description	
	Issue Date	
	Construction Completed by	
	Planned Project Completion Date	
License		
	License ID	613
	Issue Date	4/14/1978
	Licensee Reporting Cycle	
	First Licensee Report Year	



water rights upstream of
USGS 11142500
Arroyo De La Cruz NR San Simeon

Points of Diversion (12)

Points of Diversion (2)

Points of Diversion
- Adjudicated
- Cancelled
- Certified
- Claimed
- Claimed - Local Oversight
- Inactive
- Licensed
- Pending

Points of Diversion (continued)
- Permitted
- Registered
- Revoked
- State Filing
- Temporary

Lakes (1:24K)

Rivers (1:24K)

Super Planning Watersheds

NGS USA Topographic Maps

Select POD Results

Points of Diversion (2)

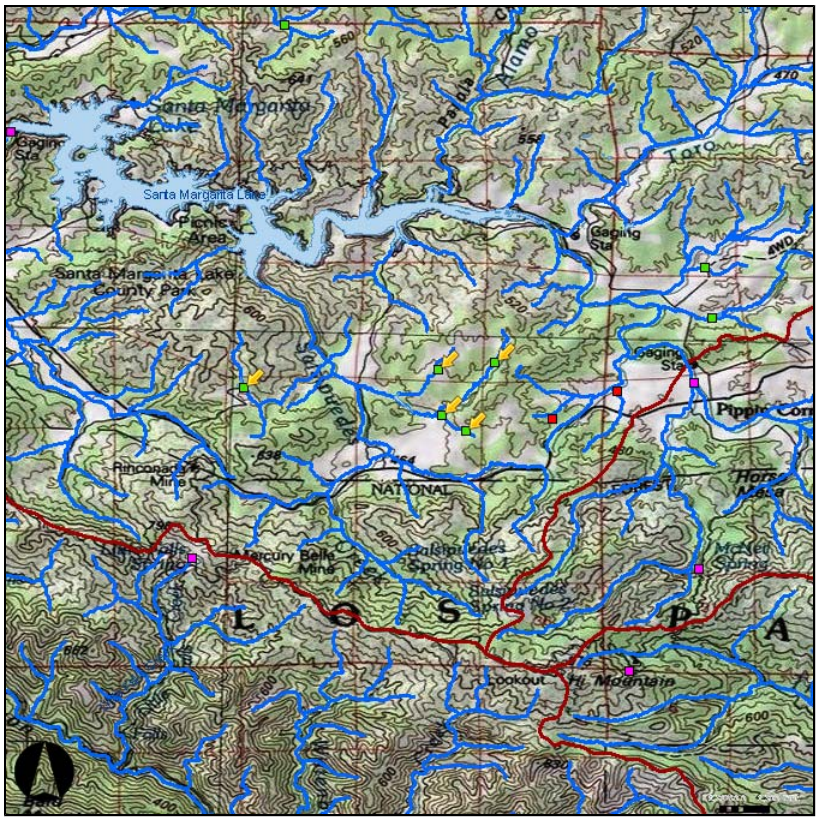
POD_ID	APPL_ID	POD_NUM	APPL_POD	TOWNSHIP_NUMBER	TOWNSHIP_DIRECTION	RANGE_NUMBER	RANGE_DIRECTION	SECTION_NUMBER	SECTION_CLASSIFIER	QUARTER	QUARTER
34643	A019108	01	A019108_01	25	S	6	E	35		NE	NE
9745	A025881	01	A025881_01	25	S	6	E	36	P	NE	SW

Select POD Results

Points of Diversion (12)

POD_ID	APPL_ID	POD_NUM	APPL_POD	TOWNSHIP_NUMBER	TOWNSHIP_DIRECTION	RANGE_NUMBER	RANGE_DIRECTION	SECTION_NUMBER	SECTION_CLASSIFIER	QUARTER	QUARTE
7099	A020026	01	A020026_01	26	S	8	E	10		NW	SE
3121	A020026	01	A020026_01	26	S	8	E	4		SW	SW
40134	A020026B	01	A020026B_01	26	S	8	E	4		SW	SW
11447	A020026B	01	A020026B_01	26	S	8	E	10		NE	SE
4164	A027126	01	A027126_01	26	S	8	E	10	P	NW	SE

39440	A027126	01	A027126_01	26	S	8	E	4	P	SW	SW
38644	A027212	01	A027212_01	26	S	8	E	10		NW	SE
6678	A027212	01	A027212_01	26	S	8	E	4		SW	SW
933	A029851	01	A029851_01	26	S	8	E	4		SW	SW
29525	A029851	01	A029851_01	26	S	8	E	10		NW	SE
2016	C000612	01	C000612_01	26	S	8	E	10		NW	NW
13524	C000613	01	C000613_01	26	S	8	E	10		SE	NW



Points of Diversion (1)

Points of Diversion (4)

Points of Diversion
- Adjudicated
- Cancelled
- Certified
- Claimed
- Claimed - Local Oversight
- Inactive
- Licensed
- Pending

Points of Diversion (continued)
- Permitted
- Registered
- Revoked
- State Filing
- Temporary

Lakes (1:24K)

Rivers (1:24K)

Super Planning Watersheds

NGS USA Topographic Maps

Select POD Results

Points of Diversion (4)

POD_ID	APPL_ID	POD_NUM	APPL_POD	TOWNSHIP_NUMBER	TOWNSHIP_DIRECTION	RANGE_NUMBER	RANGE_DIRECTION	SECTION_NUMBER	SECTION_CLASSIFIER	QUARTER	QUARTER
45387	C004801	01	C004801_01	30	S	14	E	23		NE	SW
39550	C004802	01	C004802_01	30	S	14	E	14		SE	SW
22131	C004803	01	C004803_01	30	S	14	E	13		SW	SW
39551	C005409	01	C005409_01	30	S	14	E	23		SE	NE

Select POD Results

Points of Diversion (1)

POD_ID	APPL_ID	POD_NUM	APPL_POD	TOWNSHIP_NUMBER	TOWNSHIP_DIRECTION	RANGE_NUMBER	RANGE_DIRECTION	SECTION_NUMBER	SECTION_CLASSIFIER	QUARTER	QUARTER
32606	C003486	01	C003486_01	30	S	14	E	22		NW	NW

G200
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Water Resources Data for California

Water Year 1977

Volume 1. Colorado River Basin, Southern Great Basin from Mexican Border to Mono Lake Basin, and Pacific Slope Basins from Tijuana River to Santa Maria River

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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-77-1

Prepared in cooperation with the California Department of Water Resources and with other agencies

11137400 ALAMO CREEK NEAR NIPOMO, CA

LOCATION.--Lat 35°02'55", long 120°18'05", in Huasna Grant, San Luis Obispo County, on right bank 3.2 mi (5.1 km) upstream from mouth, and 10 mi (16 km) east of Nipomo.

DRAINAGE AREA.--83.3 mi^2 (215.7 km^2).

PERIOD OF RECORD.--March 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 650 ft (198 m), from topographic map. Prior to Oct. 1, 1966, at datum 2.00 ft (0.610 m) higher.

REMARKS.--No flow since Mar. 22, 1975. No regulation or diversion above station.

AVERAGE DISCHARGE.--18 years, 7.14 ft^3/s (0.202 m^3/s), 5,170 acre-ft/yr (6.37 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,020 ft^3/s (255 m^3/s) Jan. 25, 1969, gage height, 10.51 ft (3.203 m), from rating curve extended above 3,100 ft^3/s (87.8 m^3/s) on basis of slope-area measurement at gage height 10.30 ft (3.139 m); no flow for all or part of each year.

EXTREMES FOR CURRENT YEAR.--No flow during year.

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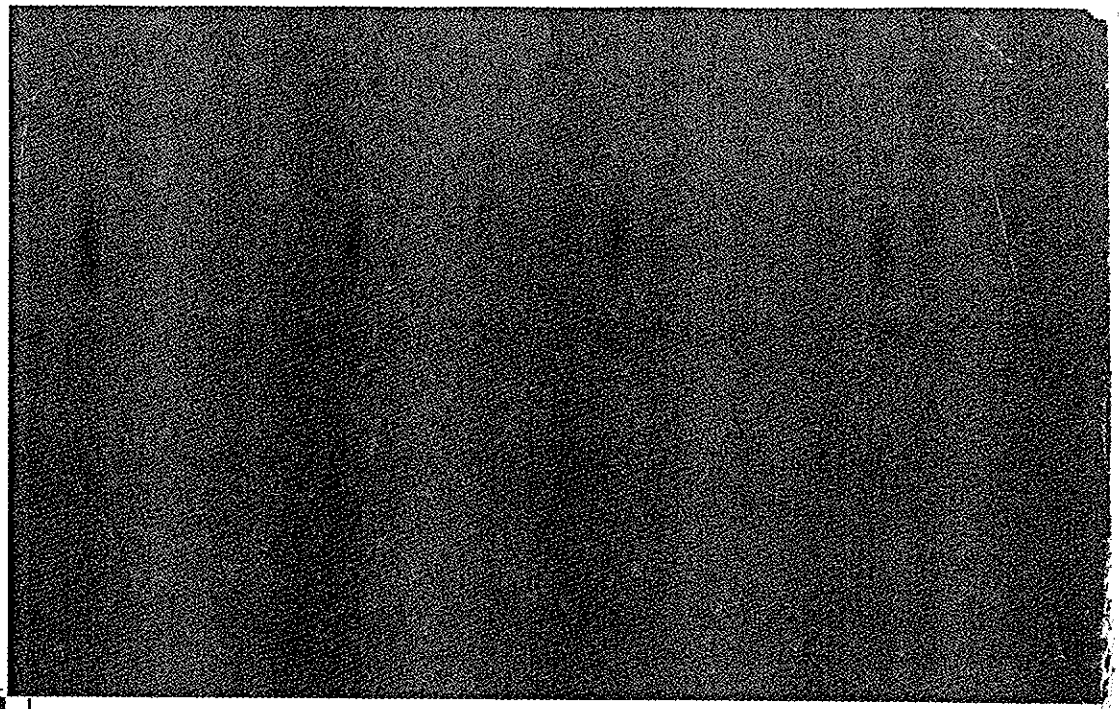

Water Resources Data for California

Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line except Central Valley

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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-78-2

WATER YEAR 1978

Prepared in cooperation with the California Department of Water Resources and with other agencies

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11141600 LOS BERROS CREEK NEAR NIPOMO, CA

LOCATION.--Lat 35°05'17", long 120°30'32", in Nipomo Grant (on boundary), San Luis Obispo County, Hydrologic Unit 18060006, on left bank at upstream side of bridge, 0.8 mi (1.3 km) downstream from Adobe Creek, and 3.7 mi (6.0 km) northwest of Nipomo.

DRAINAGE AREA.--15.0 mi^2 (38.8 km^2).

PERIOD OF RECORD.--August 1968 to September 1978 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir. Altitude of gage is 312 ft (95 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Apr. 10 to May 16, which are fair. No regulation or diversion above station.

AVERAGE DISCHARGE.--10 years, 2.20 ft^3/s (0.062 m^3/s), 1,590 acre-ft/yr (1.96 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 599 ft^3/s (17.0 m^3/s) Jan. 25, 1969, gage height, 5.43 ft (1.655 m), from rating curve extended above 230 ft^3/s (6.51 m^3/s) on basis of slope-area measurement of maximum flow; no flow Oct. 6 to Dec. 26, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft^3/s (0.6 m^3/s), revised, and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 16	1345	259	7.33	3.67	1.119	Mar. 4	1115	*402	11.4	4.41	1.344
Feb. 10	0715	368	10.4	4.23	1.289	Mar. 11	1245	31	.88	2.04	.622
Feb. 13	1130	159	4.50	3.11	.948	Apr. 17	0430	46	1.30	2.20	.671

Minimum daily discharge, no flow Oct. 6 to Dec. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01		0	.15	1.3	6.0	6.2	4.7	1.9	.84	.46	.46
2	.01		0	.15	1.2	6.4	6.0	4.4	2.0	.85	.46	.64
3	.01		0	.16	1.1	11	5.5	4.0	1.8	.78	.45	.56
4	.01		0	.16	.99	197	5.4	3.4	1.7	.84	.39	.50
5	.01		0	.31	1.3	70	4.3	3.2	1.7	.71	.38	.52
6	0		0	2.6	1.6	37	6.3	3.3	1.7	.72	.36	.42
7	0		0	1.7	8.3	22	7.6	3.4	1.6	.74	.36	.41
8	0		0	1.3	25	17	7.0	3.6	1.6	.77	.36	.39
9	0		0	2.3	145	15	6.1	3.3	1.6	.90	.34	.36
10	0		0	5.0	231	13	5.1	3.2	1.4	.89	.31	.37
11	0		0	3.7	65	12	6.2	3.1	1.3	.77	.31	.37
12	0		0	2.7	46	10	5.1	3.1	1.3	.74	.33	.36
13	0		0	2.1	75	8.8	4.7	3.0	1.3	.71	.28	.36
14	0		0	6.9	49	8.3	4.1	2.8	1.3	.55	.39	.36
15	0		0	30	29	7.7	9.6	2.6	1.4	.68	.41	.37
16	0		0	76	18	7.2	17	2.4	1.4	.77	.41	.30
17	0		0	57	13	6.6	13	2.3	1.2	.74	.41	.34
18	0		0	18	9.9	6.5	9.4	2.3	1.1	.74	.41	.30
19	0		0	18	8.6	6.3	7.5	2.3	1.1	.73	.49	.38
20	0		0	16	7.4	6.8	6.2	2.2	1.1	.66	.56	.39
21	0		0	8.8	6.8	6.2	5.8	2.2	1.2	.64	.48	.44
22	0		0	6.0	6.2	7.2	5.6	2.2	1.1	.59	.41	.36
23	0		0	3.3	5.7	7.8	5.2	2.2	1.1	.55	.44	.29
24	0		0	1.9	5.3	6.9	5.8	2.3	1.0	.56	.40	.27
25	0		0	2.8	5.2	6.3	9.2	2.2	.96	.52	.41	.26
26	0		0	2.3	5.1	5.4	6.6	2.1	1.0	.48	.33	.22
27	0		1.0	2.0	5.2	5.0	6.0	2.0	1.1	.45	.40	.22
28	0		1.1	1.8	6.3	4.6	5.4	1.9	1.2	.48	.50	.26
29	0		.21	1.7	---	4.7	5.0	1.8	1.3	.46	.51	.24
30	0		.16	1.5	---	5.4	4.8	1.8	1.1	.46	.49	.24
31	0	---	.15	1.4	---	7.1	---	1.9	---	.46	.49	---
TOTAL	.05	0	2.62	277.73	783.49	541.2	201.7	85.2	40.56	20.78	12.73	10.96
MEAN	.002	0	.085	8.96	28.0	17.5	6.72	2.75	1.35	.67	.41	.37
MAX	.01	0	1.1	76	231	197	17	4.7	2.0	.90	.56	.64
MIN	0	0	0	.15	.99	4.6	4.1	1.8	.96	.45	.28	.22
AC-FT	.10	0	5.2	551	1550	1070	400	169	80	41	25	22

CAL YR 1977 TOTAL 73.84 MEAN .20 MAX 1.1 MIN 0 AC-FT 146
WTR YR 1978 TOTAL 1977.02 MEAN 5.42 MAX 231 MIN 0 AC-FT 3920

11142080 MORRO CREEK AT MORRO BAY, CA

LOCATION.--Lat 35°22'42", long 120°51'12", in Moro Y Cayucos Grant, San Luis Obispo County, Hydrologic Unit 18060006, on left bank at upstream side of frontage road bridge in town of Morro Bay, and 700 ft (213 m) downstream from Little Morro Creek.

DRAINAGE AREA.--24.0 mi^2 (62.2 km^2).

PERIOD OF RECORD.--October 1970 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Concrete control since Nov. 7, 1971. Altitude of gage is 20 ft (6.1 m), from topographic map.

REMARKS.--Records good including those for period of no gage-height record, July 25 to Sept. 30. No regulation; small diversion above station for individual use.

AVERAGE DISCHARGE.--8 years, 8.87 ft^3/s (0.251 m^3/s), 6,430 acre-ft/yr (7.93 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,960 ft^3/s (55.5 m^3/s) Jan. 18, 1973, gage height, 10.38 ft (3.164 m), from rating curve extended above 440 ft^3/s (12.5 m^3/s) on basis of slope-area measurement of maximum flow; no flow for long periods in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 60 ft^3/s (1.7 m^3/s) and maximum (*) from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 27	1615	407	11.5	5.11	1.558	Feb. 10	0330	858	24.3	6.85	2.088
Jan. 5	2400	166	4.70	4.01	1.222	Feb. 12	1730	*1120	31.7	7.75	2.362
Jan. 9	1030	360	10.2	4.90	1.494	Mar. 4	0815	813	23.0	6.69	2.039
Jan. 16	1400	780	22.1	6.57	2.003	Apr. 15	1600	336	9.52	4.78	1.457

Minimum daily discharge, no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	11	9.8	33	22	20	8.2	4.5	2.6	1.1
2			0	12	9.4	45	20	19	7.8	3.9	2.7	1.1
3			0	11	8.5	92	20	18	7.3	3.7	2.6	1.1
4			0	8.6	7.9	411	29	18	7.4	3.8	2.6	1.3
5			0	22	13	199	22	17	7.0	3.8	2.6	2.1
6			0	65	15	119	28	16	6.9	3.6	2.5	1.8
7			0	30	114	88	30	15	6.8	3.5	2.4	1.6
8			0	21	167	69	26	15	6.8	3.7	2.4	1.4
9			0	98	486	73	25	15	6.2	3.6	2.5	1.3
10			0	89	451	56	24	14	5.5	3.5	2.4	1.4
11			0	42	165	53	23	14	5.7	3.6	2.2	1.4
12			0	29	337	42	22	13	5.3	3.4	2.1	1.4
13			0	21	295	36	22	13	4.9	3.1	2.1	1.3
14			0	99	153	34	21	12	4.7	3.0	2.0	1.4
15			0	177	103	32	86	12	4.7	3.0	2.0	1.5
16			0	266	83	31	73	12	4.7	2.9	1.9	1.6
17			0	148	65	29	43	11	4.7	2.9	1.9	1.5
18			0	71	52	28	36	11	4.3	2.9	1.8	1.4
19			0	61	44	27	33	10	4.7	2.8	1.7	1.3
20			0	52	39	26	30	10	4.9	2.9	1.7	1.2
21			0	41	35	25	28	10	5.0	2.9	1.7	1.1
22			0	33	34	34	26	10	4.7	2.8	1.7	.90
23			.91	28	32	25	24	9.8	4.5	2.8	1.7	.78
24			0	24	30	24	23	9.8	4.2	2.8	1.6	.74
25			0	21	28	23	32	9.5	4.1	2.7	1.5	.75
26			.01	18	27	23	35	9.0	4.3	2.7	1.4	.76
27			122	17	26	22	24	8.7	4.4	2.7	1.3	.78
28			161	15	35	22	22	8.0	4.1	2.6	1.3	.79
29			37	14	---	22	21	7.8	4.0	2.5	1.2	.78
30			23	13	---	23	20	7.8	4.1	2.5	1.2	.75
31		---	16	11	---	26	---	7.9	---	2.5	1.1	---
TOTAL	0	0	359.92	1568.6	2864.6	1792	890	383.3	161.9	97.6	60.4	36.33
MEAN	0	0	11.6	50.6	102	57.8	29.7	12.4	5.40	3.15	1.95	1.21
MAX	0	0	161	266	486	411	86	20	8.2	4.5	2.7	2.1
MIN	0	0	0	8.6	7.9	22	20	7.8	4.0	2.5	1.1	.74
AC-FT	0	0	714	3110	5680	3550	1770	760	321	194	120	72

CAL YR 1977 TOTAL 394.77 MEAN 1.08 MAX 161 MIN 0 AC-FT 783
WTR YR 1978 TOTAL 8214.65 MEAN 22.5 MAX 486 MIN 0 AC-FT 16290

11142100 TORO CREEK NEAR MORRO BAY, CA

LOCATION.--Lat 35°25'31", long 120°51'33", in Moro Y Cayucos Grant, San Luis Obispo County, Hydrologic Unit 18060006, on left bank at downstream side of county road bridge, 0.3 mi (0.5 km) downstream from small right-bank tributary, and 2.3 mi (3.7 km) north of town of Morro Bay.

DRAINAGE AREA.--14.0 mi^2 (36.3 km^2).

PERIOD OF RECORD.--October 1970 to September 1978 (discontinued).

GAGE.--Water-stage recorder. Concrete control since Aug. 2, 1972. Altitude of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records good except those for period of no gage-height record, Apr. 16 to May 17, which are fair. No regulation; small diversion above station for individual use.

AVERAGE DISCHARGE.--8 years, 5.74 ft^3/s (0.163 m^3/s), 4,160 acre-ft/yr (5.13 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,600 ft^3/s (130 m^3/s) Jan. 18, 1973, gage height, 9.65 ft (2.941 m), from rating curve extended above 140 ft^3/s (3.96 m^3/s) on basis of slope-area measurement of maximum flow; no flow at times in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40 ft^3/s (1.1 m^3/s) and maximum (*) from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Dec. 27	1530	264	7.48	2.87	.875	Feb. 28	2200	142	4.02	2.35	.716
Jan. 5	2330	463	13.1	3.51	1.070	Mar. 4	0815	264	7.48	2.87	.875
Jan. 9	1000	254	7.19	2.83	.863	Mar. 9	1400	100	2.83	2.13	.649
Jan. 14	2115	752	21.3	4.26	1.298	Mar. 22	0245	54	1.53	1.84	.561
Jan. 19	0230	182	5.15	2.53	.771	Apr. 4	0515	87	2.46	2.05	.625
Feb. 8	1930	597	16.9	3.88	1.183	Apr. 15	1400	616	17.4	3.93	1.198
Feb. 12	1615	*801	22.7	4.37	1.332						

Minimum daily discharge, no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1			0	3.5	6.0	19	13	12	4.7	2.3	1.8	.79
2			0	5.1	5.6	36	12	12	4.5	2.1	1.8	.83
3			0	3.8	5.2	58	12	11	4.6	2.1	1.8	.84
4			0	3.4	5.0	163	25	11	4.7	2.1	1.8	1.2
5			0	19	6.2	110	16	11	4.7	2.2	1.7	1.5
6			0	65	5.9	76	25	10	4.7	2.3	1.7	1.2
7			0	22	67	60	25	9.4	4.0	2.3	1.6	1.1
8			0	13	124	51	21	9.1	3.8	2.4	1.7	.99
9			0	53	235	54	19	8.9	3.5	2.4	1.6	.95
10			0	56	189	43	19	8.7	3.3	2.3	1.4	1.0
11			0	30	93	39	18	8.5	3.4	2.3	1.4	1.0
12			0	18	165	35	17	7.9	3.2	2.4	1.4	.90
13			0	12	132	32	16	7.6	3.0	2.3	1.4	.87
14			0	70	79	29	15	7.3	3.0	2.3	1.3	.96
15			0	104	55	27	91	7.2	3.1	2.1	1.3	1.0
16			0	144	46	26	50	7.0	3.2	2.2	1.3	1.1
17			.65	87	36	24	35	6.5	3.3	2.2	1.2	1.1
18			.13	56	30	22	28	6.1	3.0	2.1	1.1	1.0
19			0	68	26	20	25	5.9	2.9	2.1	1.1	.90
20			0	41	25	19	21	5.7	2.9	2.1	1.1	.81
21			0	32	24	19	19	5.7	2.9	1.9	1.2	.75
22			0	28	20	28	18	5.7	2.9	1.7	1.2	.65
23			.49	22	18	20	17	5.7	2.9	1.7	1.1	.52
24			0	17	16	17	16	5.5	2.8	1.7	1.1	.50
25			0	14	15	16	22	5.3	2.7	1.7	1.0	.47
26			0	12	14	15	24	5.3	2.8	1.7	.98	.41
27			52	9.9	14	14	16	5.2	2.8	1.7	.89	.45
28			79	8.9	23	13	14	5.0	2.6	1.6	.78	.56
29			20	7.7	---	13	14	4.6	2.5	1.6	.81	.53
30			8.9	6.9	---	13	13	4.5	2.5	1.6	.77	.62
31		---	5.1	6.4	---	17	---	4.6	---	1.8	.73	---
TOTAL	0	0	166.27	1038.6	1479.9	1128	676	229.9	100.9	63.3	40.06	25.50
MEAN	0	0	5.36	33.5	52.9	36.4	22.5	7.42	3.36	2.04	1.29	.85
MAX	0	0	79	144	235	163	91	12	4.7	2.4	1.8	1.5
MIN	0	0	0	3.4	5.0	13	12	4.5	2.5	1.6	.73	.41
AC-FT	0	0	330	2060	2940	2240	1340	456	200	126	79	51

CAL YR 1977 TOTAL 189.52 MEAN .52 MAX 79 MIN 0 AC-FT 376
WTR YR 1978 TOTAL 4948.43 MEAN 13.6 MAX 235 MIN 0 AC-FT 9820

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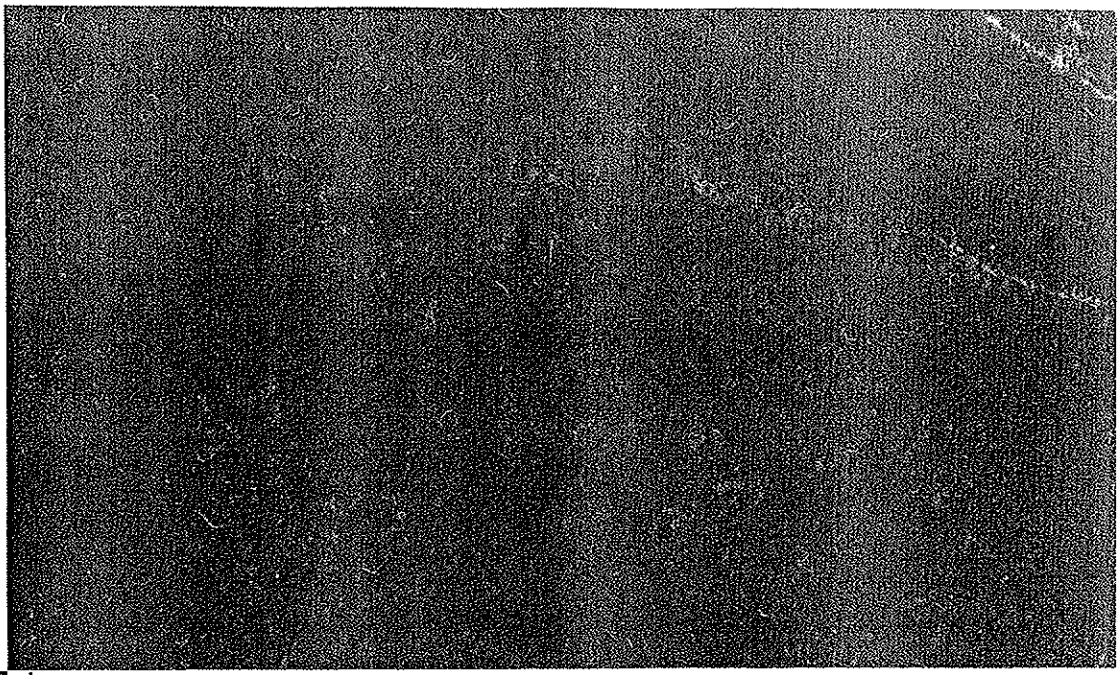

Water Resources Data for California

Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line except Central Valley

WATER RESOURCES
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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-79-2

WATER YEAR 1979

Prepared in cooperation with the California Department of Water Resources and with other agencies

11142500 ARROYO DE LA CRUZ NEAR SAN SIMEON, CA

LOCATION.--Lat 35°43'02", long 121°17'02", in Piedra Blanca Grant, San Luis Obispo County, Hydrologic Unit 18060006, on right bank 1.7 mi (2.7 km) upstream from mouth, and 7 mi (11 km) northwest of San Simeon.

DRAINAGE AREA.--41.2 mi^2 (106.7 km^2).

PERIOD OF RECORD.--October 1950 to September 1979 (discontinued).

REVISED RECORDS.--WSP 1245: 1951. WSP 1929: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 22 ft (6.7 m), from topographic map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--29 years, 54.4 ft^3/s (1.541 m^3/s), 39,410 acre-ft (48.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,200 ft^3/s (997 m^3/s) Dec. 6, 1966, gage height, 15.27 ft (4.654 m), from rating curve extended above 7,600 ft^3/s (215 m^3/s) on basis of slope-area measurements at gage heights 12.40 ft (3.780 m) and 15.27 ft (4.654 m); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft^3/s (71 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 15	0115	*7600	215	9.42	2.871
Feb. 20	1930	4130	117	7.68	2.341

Minimum daily discharge, no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	7.4	1.1	545	212	168	17	8.1	1.4		
2		0	6.0	.98	392	167	138	17	7.2	1.2		
3		0	4.3	.93	274	148	118	16	6.6	1.1		
4		0	3.5	.93	194	136	103	15	6.0	1.0		
5		0	3.0	.92	145	125	92	14	5.6	.90		
6		0	2.2	.84	108	116	82	14	5.2	.89		
7		0	1.6	.80	79	110	74	13	4.9	.86		
8		0	1.2	163	55	104	66	13	4.5	.84		
9		0	1.1	212	38	99	58	12	4.0	.80		
10		0	1.1	56	35	94	55	11	3.5	.78		
11		0	1.0	33	33	90	54	11	3.1	.76		
12		0	.93	47	32	87	51	10	2.9	.71		
13		0	.92	25	502	83	48	10	2.7	.63		
14		0	.80	398	797	79	45	10	2.6	.26		
15		0	.80	1950	334	81	42	10	2.8	.11		
16		0	.80	577	402	107	39	11	2.8	.04		
17		0	.85	125	265	210	37	11	2.7	.01		
18		0	.99	180	213	114	35	10	2.5	0		
19		0	16	125	189	99	32	11	2.4	0		
20		0	17	91	758	93	30	11	2.4	0		
21		793	11	66	851	86	28	11	2.4	0		
22		261	7.2	50	536	81	27	12	2.3	0		
23		112	4.8	44	482	77	27	12	2.2	0		
24		58	3.4	41	328	73	25	12	2.2	0		
25		36	2.7	38	264	69	24	12	2.2	0		
26		23	2.1	34	231	207	25	11	2.1	0		
27		17	1.7	30	199	1040	32	10	1.9	0		
28		13	1.6	27	180	966	23	9.5	1.6	0		
29		10	1.5	26	---	609	20	9.3	1.5	0		
30		8.3	1.3	45	---	321	18	9.3	1.4	0		
31		---	1.1	783	---	222	---	8.8	---	0		---
TOTAL	0	1331.3	109.89	5172.50	8461	6105	1616	363.9	102.3	12.29	0	0
MEAN	0	44.4	3.54	167	302	197	53.9	11.7	3.41	.40	0	0
MAX	0	793	17	1950	851	1040	168	17	8.1	1.4	0	0
MIN	0	0	.80	.80	32	69	18	8.8	1.4	0	0	0
AC-FT	0	2640	218	10260	16780	12110	3210	722	203	24	0	0

CAL YR 1978 TOTAL 36152.44 MEAN 99.0 MAX 3180 MIN 0 AC-FT 71710
WTR YR 1979 TOTAL 23274.18 MEAN 63.8 MAX 1950 MIN 0 AC-FT 46160

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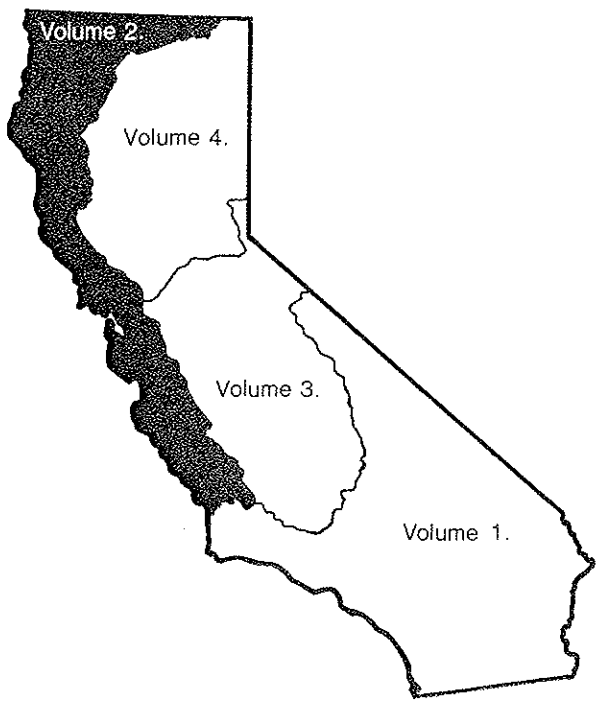
USG-2
1983
Vol. 2

Water Resources Data California

Water Year 1983

Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line except Central Valley



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-83-2
Prepared in cooperation with the California Department of Water Resources and with other agencies

11143500 SALINAS RIVER NEAR POZO, CA

LOCATION.--Lat 35°17'55", long 120°24'10", in NE 1/4 sec.19, T.30 S., R.15 E., San Luis Obispo County, Hydrologic Unit 18060005, on right bank at downstream side of county road bridge, 1.0 mi downstream from Pozo Creek, 1.6 mi west of Pozo, and 7.4 mi upstream from Salinas Dam.

DRAINAGE AREA.--70.3 mi^2.

PERIOD OF RECORD.--July 1942 to September 1983 (discontinued).

REVISED RECORDS.--WSP 1565: 1943(M). WSP 2129: 1952, 1953(P), 1954(M), 1958(M), 1960(M). WDR CA-74-1: 1973.

GAGE.--Water-stage recorder. Datum of gage is 1,347.78 ft National Geodetic Vertical Datum of 1929. Prior to May 13, 1969, water-stage recorder at site 0.4 mi downstream at same datum.

REMARKS.--Records poor. No regulation or diversion above station. Water is stored in Santa Margarita Lake below station.

AVERAGE DISCHARGE.--41 years, 19.5 ft^3/s, 14,130 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,600 ft^3/s Jan. 25, 1969, gage height, 13.90 ft in gage well, 15.5 ft site then in use, from floodmarks, from rating curve extended above 7,100 ft^3/s on basis of slope-area measurement of maximum flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s and maximum (*) from rating curve extended above 620 ft^3/s on basis of slope-area measurement of peak flow:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 30	0815	2,770	16.84	Feb. 8	0200	1,790	15.34
Dec. 22	1800	*5,270	19.59	Feb. 12	0515	431	12.04
Jan. 24	0915	2,880	16.98	Mar. 1	0345	3,850	18.13
Jan. 27	0500	3,560	17.81				

Minimum daily, 0.93 ft^3/s Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	1.5	60	12	118	1570	50	141	7.6	5.0	3.1	2.3
2	.97	1.4	8.0	10	103	1140	46	108	7.0	4.9	3.0	2.3
3	.97	1.4	7.0	8.6	91	681	43	81	7.6	4.8	2.9	2.3
4	1.0	1.3	6.0	7.4	75	435	41	65	8.3	4.4	2.9	2.2
5	1.0	1.4	5.1	6.5	67	308	38	56	10	4.0	2.8	2.2
6	1.1	1.4	4.9	5.9	88	242	36	45	9.8	4.1	2.7	2.3
7	1.1	1.4	5.3	5.2	289	196	34	40	9.1	3.7	2.7	2.3
8	1.1	1.4	4.7	4.7	862	160	33	35	9.2	3.8	2.7	2.2
9	1.1	3.7	4.5	4.3	305	130	31	33	9.3	3.8	2.7	2.1
10	1.1	2.9	4.4	3.8	192	110	30	29	10	3.9	2.7	2.1
11	1.1	2.0	4.5	3.4	146	97	29	27	10	4.0	2.7	2.0
12	1.1	1.8	4.6	3.2	173	80	28	26	10	3.8	2.6	1.8
13	1.0	1.8	4.3	2.9	285	110	27	25	11	3.7	2.4	1.8
14	.93	1.8	4.4	2.7	160	87	24	24	12	3.6	2.5	1.5
15	.98	1.8	4.4	2.7	118	65	22	22	9.2	3.5	2.4	1.4
16	.95	1.8	4.4	2.7	99	110	21	21	4.0	3.5	2.3	1.3
17	1.0	1.8	4.1	2.5	84	135	20	19	5.0	3.5	2.3	1.3
18	1.0	3.5	4.1	10	77	220	68	18	5.8	3.4	2.7	1.2
19	.98	3.3	4.1	29	65	150	79	17	6.0	3.3	3.3	1.1
20	1.0	2.3	4.1	14	56	130	70	15	6.4	3.2	2.8	1.2
21	1.1	2.1	4.5	9.6	49	165	87	14	6.8	3.1	2.8	1.3
22	1.2	2.2	1570	897	44	130	58	12	6.7	3.1	2.7	1.4
23	1.2	2.2	445	594	40	150	51	11	6.6	3.2	2.7	1.4
24	1.3	2.1	101	1190	37	240	91	9.7	6.4	3.3	2.6	1.4
25	1.5	2.1	55	321	66	160	66	10	6.3	3.2	2.5	1.5
26	2.4	2.1	37	165	177	120	52	10	5.7	3.2	2.6	1.4
27	1.5	2.0	26	1860	805	90	42	9.8	5.4	3.1	2.4	1.4
28	1.3	2.0	22	541	502	82	48	9.8	5.3	3.0	2.4	1.4
29	1.2	7.7	22	476	---	70	57	9.7	5.1	3.1	2.3	1.6
30	1.8	718	18	218	---	60	157	9.3	5.0	3.1	2.6	1.8
31	1.7	---	15	147	---	53	---	8.7	---	3.0	2.4	---
TOTAL	36.68	782.2	2468.4	6560.1	5173	7476	1479	961.0	226.6	112.3	82.2	51.5
MEAN	1.18	26.1	79.6	212	185	241	49.3	31.0	7.55	3.62	2.65	1.72
MAX	2.4	718	1570	1860	862	1570	157	141	12	5.0	3.3	2.3
MIN	.93	1.3	4.1	2.5	37	53	20	8.7	4.0	3.0	2.3	1.1
AC-FT	73	1550	4900	13010	10260	14830	2930	1910	449	223	163	102

CAL YR 1982 TOTAL 12439.3 MEAN 34.2 MAX 1900 MIN .78 AC-FT 24670
WTR YR 1983 TOTAL 25408.98 MEAN 69.8 MAX 1860 MIN .93 AC-FT 50400

11144200 SALSIPUEDES CREEK NEAR POZO, CA

LOCATION.--Lat 35°17'34", long 120°27'07", in NW 1/4 SW 1/4 sec.23, T.30 S., R.14 E., San Luis Obispo County, Hydrologic Unit 18060005, on left bank 1.9 mi upstream from mouth, and 4.4 mi west of Pozo.

DRAINAGE AREA.--5.91 mi^2.

PERIOD OF RECORD.--October 1969 to September 1983 (discontinued).

REVISED RECORDS.--WDR CA-72-1: 1971(P).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 1,480 ft, from topographic map.

REMARKS.--Records fair except for period of faulty or no gage-height record, Feb. 19 to July 16, which is poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--14 years, 2.64 ft^3/s, 1,920 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,450 ft^3/s Feb. 21, 1980, gage height, 6.12 ft, from rating curve extended above 67 ft^3/s on basis of slope-area measurements at gage heights 4.58 ft and 5.88 ft; no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s, and maximum (*) from rating curve extended as explained above:

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov. 30	Unknown	976	4.94	Jan. 26	2315	313	3.05
Dec. 22	1530	1,250	5.64	Feb. 7	2200	495	3.65
Jan. 24	0545	*1,260	5.66	Mar. 1	0045	1,130	5.34

Minimum, no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1982 TO SEPTEMBER 1983
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		0	4.0	1.9	11	276	6.2	10	.63	.04	0	.01
2		0	2.0	1.7	14	150	5.5	8.0	.57	.03	0	.01
3		0	1.0	1.6	11	90	5.2	6.8	.52	.03	0	.01
4		0	.65	1.5	8.8	65	4.7	6.0	.48	.03	0	.01
5		0	.48	1.4	9.3	48	4.4	5.4	.43	.02	0	.01
6		0	.35	1.2	21	38	4.2	4.9	.39	.02	0	.01
7		0	.29	1.1	68	31	4.0	4.5	.37	.02	0	.01
8		0	.23	1.1	63	26	3.9	4.2	.33	.02	0	.02
9		.14	.20	1.0	25	23	3.7	3.8	.30	.02	0	.02
10		.03	.18	.92	16	17	3.6	3.5	.28	.01	0	.02
11		0	.17	.89	12	15	3.4	3.3	.25	.01	0	.01
12		0	.16	.89	50	12	3.3	3.1	.23	.01	0	.01
13		0	.16	.79	43	15	3.1	2.9	.21	.01	0	.01
14		0	.15	.79	26	12	2.9	2.8	.19	.01	0	0
15		0	.16	.79	22	9.3	2.8	2.7	.17	.01	0	0
16		0	.15	.79	19	17	2.6	2.5	.16	.01	0	0
17		0	.13	.73	18	18	2.4	2.3	.14	0	0	0
18		0	.13	5.1	20	30	18	2.2	.13	0	0	0
19		.54	.13	6.1	19	18	12	2.0	.12	0	0	0
20		.30	.11	2.4	17	19	13	1.8	.11	0	0	0
21		.12	.43	2.1	14	23	15	1.7	.10	0	0	0
22		.06	296	141	13	18	14	1.6	.09	0	0	0
23		.07	31	39	12	22	9.0	1.5	.08	0	.01	0
24		.05	11	134	13	33	12	1.4	.07	0	0	0
25		.05	6.5	27	25	25	9.0	1.2	.07	0	0	0
26		.05	4.6	38	20	18	6.3	1.1	.06	0	0	0
27		.05	3.6	107	75	12	5.4	1.0	.06	0	0	0
28		.06	3.0	32	70	10	7.5	.92	.05	0	0	0
29		1.0	2.7	26	---	8.0	6.5	.85	.05	0	0	0
30		28	2.5	16	---	7.4	14	.75	.04	0	0	0
31		---	2.2	13	---	6.5	---	.70	---	0	0	---
TOTAL	0	30.52	374.36	607.79	735.1	1112.2	207.6	95.42	6.68	0.30	0.01	0.16
MEAN	0	1.02	12.1	19.6	26.3	35.9	6.92	3.08	.22	.010	.000	.005
MAX	0	28	296	141	75	276	18	10	.63	.04	.01	.02
MIN	0	0	.11	.73	8.8	6.5	2.4	.70	.04	0	0	0
AC-FT	0	61	743	1210	1460	2210	412	189	13	.6	.02	.3

CAL YR 1982 TOTAL 1395.23 MEAN 3.82 MAX 296 MIN 0 AC-FT 2770
WTR YR 1983 TOTAL 3170.14 MEAN 8.69 MAX 296 MIN 0 AC-FT 6290

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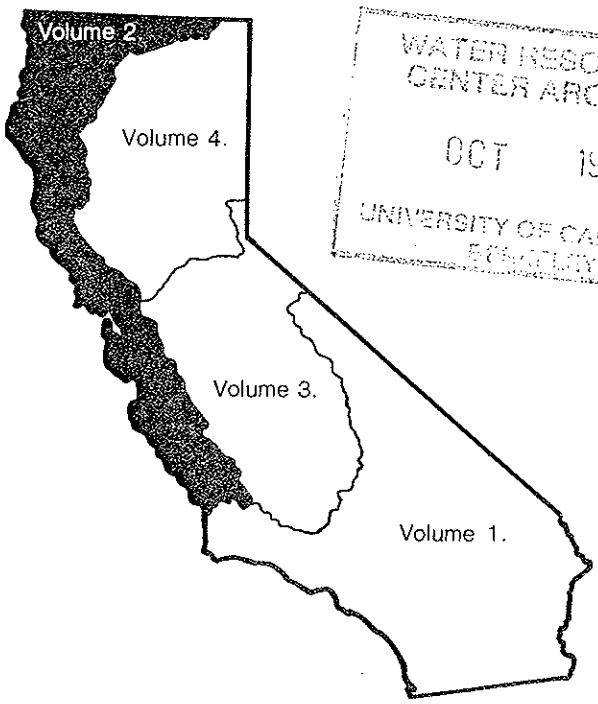
Water Resources Data California

Water Year 1989

Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line except Central Valley



WATER RESOURCES CENTER ARCHIVES
OCT 1990
UNIVERSITY OF CALIFORNIA

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-89-2
Prepared in cooperation with the California Department of Water Resources and with other agencies

11142300 SAN SIMEON CREEK NEAR CAMBRIA, CA

LOCATION.--Lat 35°35'59", long 121°06'47", in San Simeon Grant, San Luis Obispo County, Hydrologic Unit 18060006, on right bank, 0.7 mi upstream of Highway 1 bridge and 3.0 mi northwest of Cambria.

DRAINAGE AREA.--26.3 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1987 to July 1989 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 12.13 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. No regulation or diversion upstream from station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec. 24	0930	*4,880	*15.05				

No flow for many days.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	18	2.4	2.4	8.8	1.2	.00	.00	---	---
2	.00	.00	.00	11	2.1	48	7.8	1.1	.00	.00	---	---
3	.00	.00	.00	8.9	2.2	23	7.0	.89	.00	.00	---	---
4	.00	.00	.00	7.5	13	11	6.1	.37	.00	.00	---	---
5	.00	.00	.00	141	9.4	8.2	5.4	.18	.00	.00	---	---
6	.00	.00	.00	e43	5.5	7.2	4.7	.05	.00	.00	---	---
7	.00	.00	.00	24	4.4	6.7	4.1	.00	.00	.00	---	---
8	.00	.00	.00	17	4.5	6.0	3.7	.00	.00	.00	---	---
9	.00	.00	.00	14	36	5.4	3.1	.00	.00	.00	---	---
10	.00	.00	.00	12	17	5.1	3.1	.00	.00	.00	---	---
11	.00	.00	.00	10	11	11	3.0	.00	.00	.00	---	---
12	.00	.00	.00	8.2	8.9	9.4	2.8	.00	.00	---	---	---
13	.00	.00	.00	7.2	7.8	6.7	2.5	.00	.00	---	---	---
14	.00	.00	.00	6.8	6.7	6.0	2.6	.00	.00	---	---	---
15	.00	.00	.00	6.2	5.9	5.7	2.2	.00	.00	---	---	---
16	.00	.00	.00	5.7	5.5	11	2.1	.00	.00	---	---	---
17	.00	.00	.00	5.1	5.0	12	2.1	.00	.00	---	---	---
18	.00	.00	.00	4.7	4.8	8.3	2.3	.00	.00	---	---	---
19	.00	.00	.00	4.5	4.7	7.2	2.4	.00	.00	---	---	---
20	.00	.00	.00	4.0	4.3	6.6	2.3	.00	.00	---	---	---
21	.00	.00	.51	3.4	3.9	5.8	2.1	.00	.00	---	---	---
22	.00	.00	124	2.7	3.7	5.4	1.9	.00	.00	---	---	---
23	.00	.00	38	5.5	3.4	5.2	1.8	.00	.00	---	---	---
24	.00	.00	784	6.5	3.3	58	2.0	.00	.00	---	---	---
25	.00	.00	76	4.2	3.2	104	3.1	.00	.00	---	---	---
26	.00	.00	30	3.7	2.9	48	2.5	.00	.00	---	---	---
27	.00	.00	19	3.2	2.9	24	2.0	.00	.00	---	---	---
28	.00	.00	16	2.9	2.7	18	1.7	.00	.00	---	---	---
29	.00	.00	12	2.8	---	14	1.3	.00	.00	---	---	---
30	.00	.00	11	2.6	---	12	1.2	.00	.00	---	---	---
31	.00	---	26	2.5	---	10	---	.00	---	---	---	---
TOTAL	0.00	0.00	1136.51	398.8	187.1	511.3	97.7	3.79	0.00	---	---	---
MEAN	.00	.00	36.7	12.9	6.68	16.5	3.26	.12	.00	---	---	---
MAX	.00	.00	784	141	36	104	8.8	1.2	.00	---	---	---
MIN	.00	.00	.00	2.5	2.1	2.4	1.2	.00	.00	---	---	---
AC-FT	.0	.0	2250	791	371	1010	194	7.5	.0	---	---	---

CAL YR 1988 TOTAL 2591.50 MEAN 7.08 MAX 784 MIN .00 AC-FT 5140

e Estimated.

11142300 SAN SIMEON CREEK NEAR CAMBRIA, CA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
CHEMICAL DATA: Water year 1988 to February 1989 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
JAN									
31...	1210	2.7	519	--	12.0	--	--	--	--
FEB									
23...	1325	3.6	495	8.20	17.0	240	44	31	16

DATE	SODIUM PERCENT	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	BROMIDE DIS-SOLVED (MG/L AS BR)
JAN								
31...	--	--	--	--	--	--	--	--
FEB								
23...	13	0.5	1.1	216	44	13	0.10	<0.010

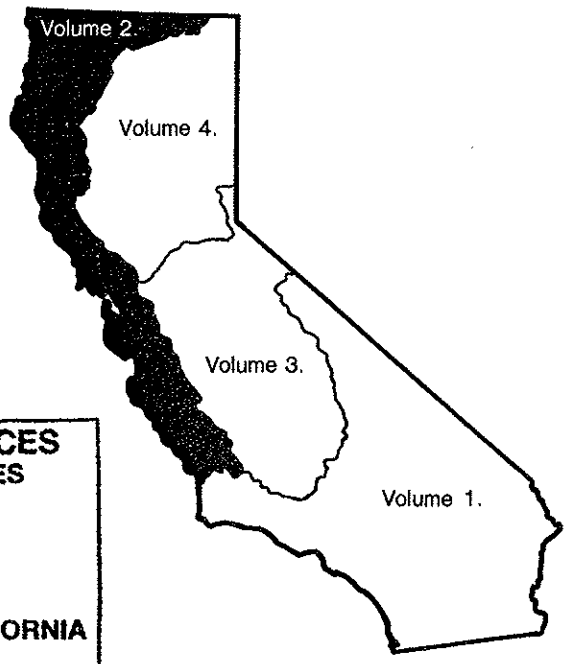
DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	BORON, DIS-SOLVED (UG/L AS B)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
JAN								
31...	--	--	--	--	--	--	--	--
FEB								
23...	14	292	294	<0.010	0.206	180	5	3

< Actual value is known to be less than the value shown.

G200
USG-2
1992
V.2
C.1

Water Resources Data California Water Year 1992

Volume 2. Pacific Slope Basins from Arroyo Grande to Oregon State Line except Central Valley



WATER RESOURCES
CENTER ARCHIVES

UNIVERSITY OF CALIFORNIA
BERKELEY

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT CA-92-2
Prepared in cooperation with the California Department of Water Resources and with other agencies

ARROYO GRANDE BASIN

11141150 ARROYO GRANDE ABOVE PHOENIX CREEK, NEAR ARROYO GRANDE, CA

LOCATION.--Lat 35°11'19", long 120°26'03", in Arroyo Grande Grant, San Luis Obispo County, Hydrologic Unit 18060006, on right bank 0.4 mi upstream from county road bridge, 0.45 mi upstream from Phoenix Creek, and 9.2 mi northeast of Arroyo Grande.

DRAINAGE AREA.--13.4 mi^2.

PERIOD OF RECORD.--June 1967 to September 1992 (discontinued).
CHEMICAL DATA: Water year 1977.
WATER TEMPERATURE: Water years 1968-73.
SEDIMENT DATA: Water years 1967-73, June 1990.

REVISED RECORDS.--WDR CA-70-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 560 ft above National Geodetic Vertical Datum of 1929, from topographic map. Prior to May 24, 1984, at site 0.4 mi downstream at different datum.

REMARKS.--Records poor. No regulation or diversion upstream from station except for small stock ponds.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,270 ft^3/s, Jan. 25, 1969, gage height, 6.83 ft, in gage well, 6.57 ft from floodmarks, site and datum then in use, from rating curve extended above 350 ft^3/s on basis of slope-area measurement of peak flow; maximum gage height, 8.29 ft, Apr. 4, 1978, from floodmark, site and datum then in use; minimum daily discharge, 0.12 ft^3/s, Sept. 7, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Feb. 12	e0630	e*225	unknown	Feb. 15	e0445	e200	unknown

Minimum daily, 0.28 ft^3/s, Sept. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.30	e.45	e.62	e1.3	e.82	e1.6	e1.3	1.1	.84	.79	.49	.55
2	e.30	e.42	e.62	e.83	e.82	e1.6	e1.3	1.1	.79	.76	.53	.42
3	e.30	e.41	e.62	e.80	e.82	e1.5	e1.3	1.1	.80	.66	.48	.38
4	e.31	e.40	e.62	e.90	e.81	e1.5	e1.3	1.2	.87	.67	.50	.39
5	e.31	e.40	e.62	e10	e.81	e1.6	e1.3	1.3	.99	.58	.40	.41
6	e.31	e.40	e.62	e7.0	e.81	e4.0	e1.3	1.3	1.1	.44	.43	.43
7	e.31	e.40	e.64	e7.4	e.80	e3.5	e1.3	1.4	1.1	.40	.41	.33
8	e.31	e.40	e.70	e3.8	e.80	e2.6	e1.3	1.5	1.1	.44	.38	.33
9	e.32	e.41	e.69	e2.0	e.80	e2.0	e1.3	1.5	1.1	.45	.41	.33
10	e.32	e.70	e.67	e1.5	e17	e1.8	1.3	1.5	1.3	.47	.43	.39
11	e.32	e.67	e.66	e1.3	e28	e1.7	1.2	1.5	1.4	.53	.46	.37
12	e.32	e.60	e.66	e1.1	e56	e1.6	1.2	1.5	1.4	.64	.38	.39
13	e.32	e.53	e.66	e1.0	e45	e1.6	1.3	1.3	1.5	.70	.39	.41
14	e.33	e.50	e.66	e.97	e35	e1.5	1.4	1.3	1.6	.71	.42	.37
15	e.33	e.48	e.66	e.94	e60	e1.5	1.3	1.3	1.7	.73	.41	.38
16	e.33	e.46	e.66	e.94	e35	e1.5	1.3	1.2	1.0	.64	.41	.41
17	e.33	e.50	e.66	e.91	e18	e1.5	1.3	1.1	1.2	.62	.41	.39
18	e.33	e1.0	e.66	e.90	e9.0	e1.5	1.3	1.1	1.4	.63	.39	.39
19	e.34	e.96	e.66	e.88	e4.8	e1.4	1.5	1.1	1.5	.54	.42	.39
20	e.34	e.81	e.66	e.87	e3.3	e1.4	1.5	1.0	1.5	.55	.39	.38
21	e.34	e.73	e.66	e.86	e2.8	e1.4	1.6	1.0	1.4	.55	.40	.29
22	e.34	e.68	e.66	e.86	e2.5	e2.0	1.5	1.0	1.3	.51	.43	.28
23	e.35	e.67	e.66	e.86	e2.3	e1.9	1.5	1.0	1.2	.47	.44	.31
24	e.35	e.66	e.66	e.85	e2.1	e1.7	1.5	1.0	1.1	.52	.45	.33
25	e.35	e.65	e.66	e.85	e2.0	e1.6	1.4	1.0	.96	.52	.44	.38
26	e.80	e.64	e.66	e.84	e1.9	e1.5	1.4	.99	.95	.54	.42	.37
27	e.77	e.63	e.66	e.84	e1.8	e1.5	1.3	.94	.93	.58	.33	.40
28	e.64	e.63	e3.5	e.84	e1.7	e1.5	1.3	.90	.79	.49	.40	.42
29	e.57	e.63	e6.0	e.84	e1.7	e1.4	1.2	.93	.75	.54	.45	.42
30	e.51	e.62	e6.4	e.83	---	e1.4	1.2	.91	.83	.57	.51	.41
31	e.48	---	e2.5	e.83	---	e1.4	---	.86	---	.46	.51	---
TOTAL	11.88	17.44	36.04	54.64	337.19	54.2	40.2	35.93	34.40	17.70	13.32	11.45
MEAN	.38	.58	1.16	1.76	11.6	1.75	1.34	1.16	1.15	.57	.43	.38
MAX	.80	1.0	6.4	10	60	4.0	1.6	1.5	1.7	.79	.53	.55
MIN	.30	.40	.62	.80	.80	1.4	1.2	.86	.75	.40	.33	.28
AC-FT	24	35	71	108	669	108	80	71	68	35	26	23

e Estimated.

11141150 ARROYO GRANDE ABOVE PHOENIX CREEK, NEAR ARROYO GRANDE, CA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1992, BY WATER YEAR (WY)

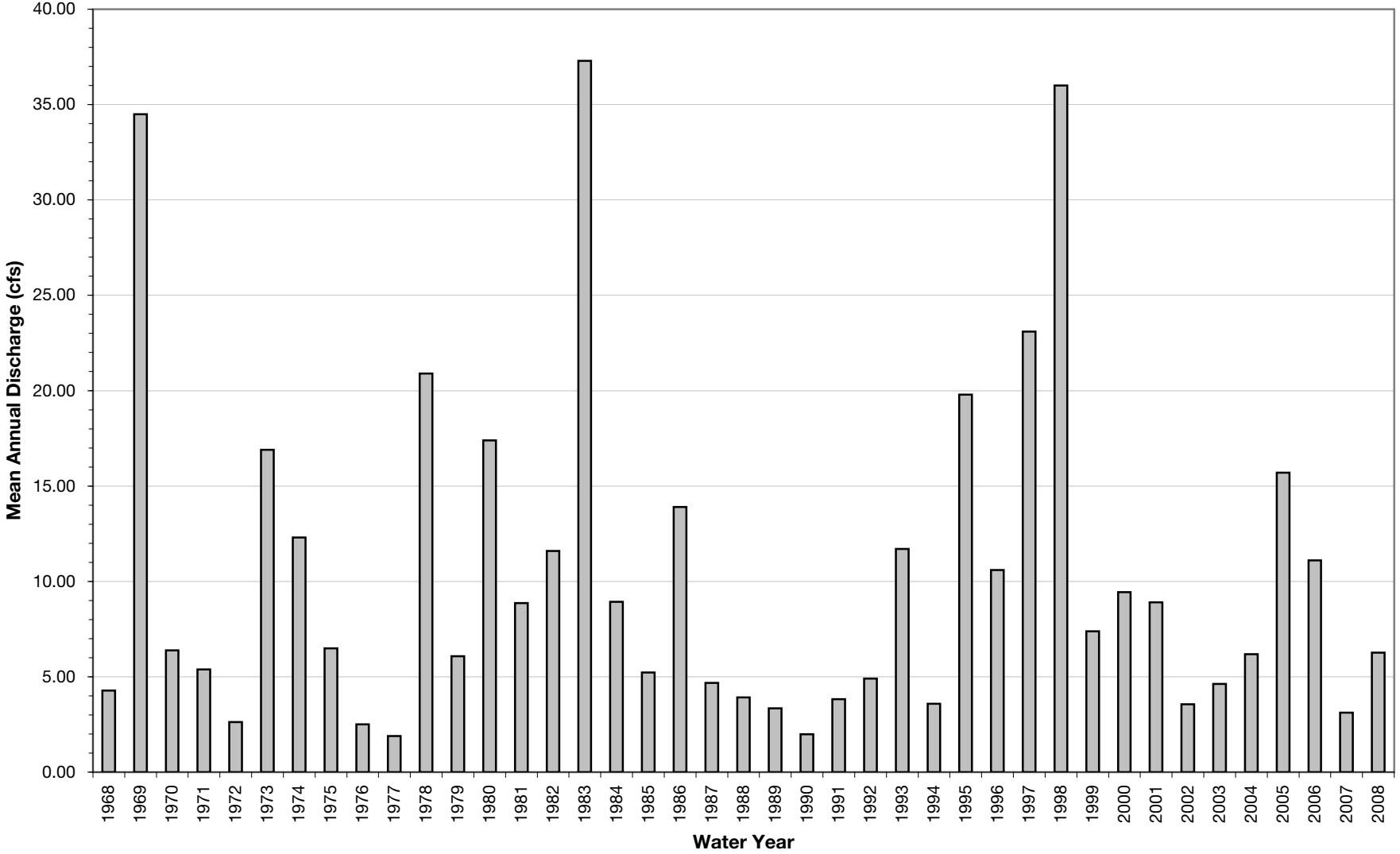
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	.96	1.38	1.90	4.93	7.42	6.67	3.36	1.84	1.47	1.07	.83	.76
MAX	1.95	4.75	6.75	47.8	42.3	32.2	16.0	5.90	4.23	2.84	2.07	1.50
(WY)	1984	1983	1983	1969	1969	1986	1982	1983	1983	1983	1983	1986
MIN	.32	.40	.41	.52	.66	.80	.57	.43	.28	.18	.20	.26
(WY)	1991	1991	1991	1991	1991	1990	1990	1990	1990	1990	1990	1990

SUMMARY STATISTICS	FOR 1991 CALENDAR YEAR		FOR 1992 WATER YEAR		WATER YEARS 1967 - 1992	
ANNUAL TOTAL	288.75		664.39			
ANNUAL MEAN	.79		1.82		2.68	
HIGHEST ANNUAL MEAN					10.8	1969
LOWEST ANNUAL MEAN					.50	1990
HIGHEST DAILY MEAN	8.6	Mar 20	60	Feb 15	391	Jan 25 1969
LOWEST DAILY MEAN	.30	Sep 29	.28	Sep 22	.12	Sep 7 1977
ANNUAL SEVEN-DAY MINIMUM	.30	Sep 27	.31	Oct 1	.16	Aug 5 1990
INSTANTANEOUS PEAK FLOW			225	Feb 12	1270	Jan 25 1969
INSTANTANEOUS PEAK STAGE			.00	Feb 12	8.29	Apr 4 1978
ANNUAL RUNOFF (AC-FT)	573		1320		1940	
10 PERCENT EXCEEDS	.99		1.7		3.6	
50 PERCENT EXCEEDS	.62		.80		1.2	
90 PERCENT EXCEEDS	.34		.38		.43	

Attachment 2

Mean Annual Discharge and Kendall's Tau Correlation Tests (Lopez Creek and Nacimiento River)

USGS 11141280 Lopez Creek - Index Station 1



USGS 11141280 LOPEZ C NR ARROYO GRANDE CA

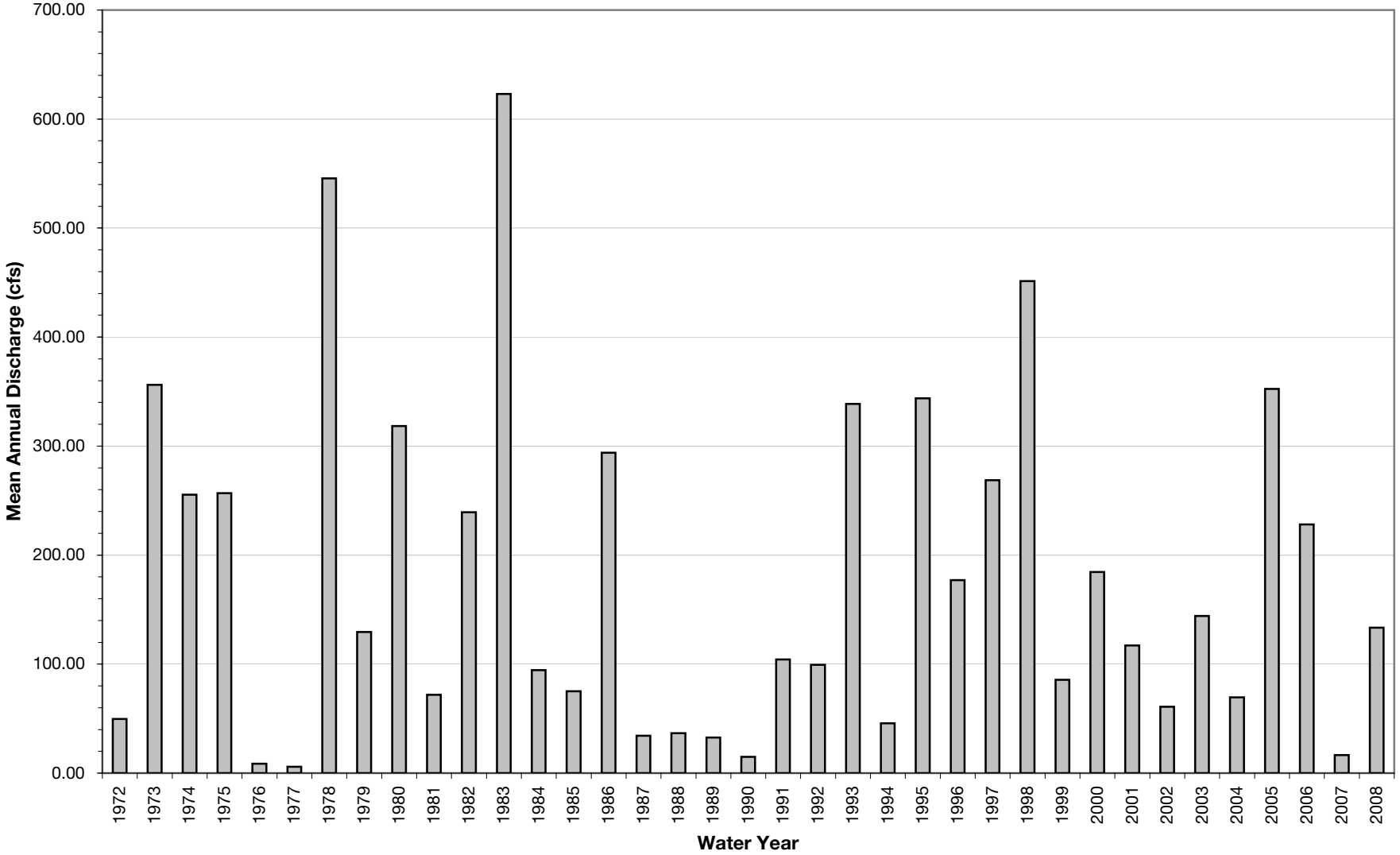
Agency	Gage No.	Water Year	Mean Annual Flow (cfs)
USGS	11141280	1968	4.28
USGS	11141280	1969	34.50
USGS	11141280	1970	6.38
USGS	11141280	1971	5.38
USGS	11141280	1972	2.63
USGS	11141280	1973	16.90
USGS	11141280	1974	12.30
USGS	11141280	1975	6.49
USGS	11141280	1976	2.50
USGS	11141280	1977	1.89
USGS	11141280	1978	20.90
USGS	11141280	1979	6.08
USGS	11141280	1980	17.40
USGS	11141280	1981	8.87
USGS	11141280	1982	11.60
USGS	11141280	1983	37.30
USGS	11141280	1984	8.93
USGS	11141280	1985	5.22
USGS	11141280	1986	13.90
USGS	11141280	1987	4.68
USGS	11141280	1988	3.92
USGS	11141280	1989	3.35
USGS	11141280	1990	1.99
USGS	11141280	1991	3.82
USGS	11141280	1992	4.90
USGS	11141280	1993	11.70
USGS	11141280	1994	3.59
USGS	11141280	1995	19.80
USGS	11141280	1996	10.60
USGS	11141280	1997	23.10
USGS	11141280	1998	36.00
USGS	11141280	1999	7.39
USGS	11141280	2000	9.44
USGS	11141280	2001	8.90
USGS	11141280	2002	3.56
USGS	11141280	2003	4.63
USGS	11141280	2004	6.18
USGS	11141280	2005	15.70
USGS	11141280	2006	11.10
USGS	11141280	2007	3.12
USGS	11141280	2008	6.26

Kendall Rank Correlation for Column 1, Column 2

Score	-14.000
Tau	-.017
Z-Value	-.157
P-Value	.8751
Tau corrected for ties	-.017
Tied Z-Value	-.157
Tied P-Value	.8751
# Ties, Column 1	0
# Ties, Column 2	0

9 cases were omitted due to missing values.

USGS 11148900 Nacimiento River - Index Station 2



USGS 11148900 NACIMIENTO R BL SAPAQUE C NR BRYSON CA

Agency	Gage No.	Water Year	Mean Annual Flow (cfs)
USGS	11148900	1972	49.60
USGS	11148900	1973	356.10
USGS	11148900	1974	255.40
USGS	11148900	1975	256.80
USGS	11148900	1976	8.62
USGS	11148900	1977	5.74
USGS	11148900	1978	545.70
USGS	11148900	1979	129.40
USGS	11148900	1980	318.30
USGS	11148900	1981	71.80
USGS	11148900	1982	239.30
USGS	11148900	1983	623.00
USGS	11148900	1984	94.50
USGS	11148900	1985	75.20
USGS	11148900	1986	293.90
USGS	11148900	1987	34.30
USGS	11148900	1988	36.60
USGS	11148900	1989	32.60
USGS	11148900	1990	14.90
USGS	11148900	1991	104.30
USGS	11148900	1992	99.30
USGS	11148900	1993	338.70
USGS	11148900	1994	45.70
USGS	11148900	1995	343.90
USGS	11148900	1996	177.00
USGS	11148900	1997	268.60
USGS	11148900	1998	451.30
USGS	11148900	1999	85.60
USGS	11148900	2000	184.40
USGS	11148900	2001	117.00
USGS	11148900	2002	60.90
USGS	11148900	2003	144.20
USGS	11148900	2004	69.40
USGS	11148900	2005	352.40
USGS	11148900	2006	228.10
USGS	11148900	2007	16.50
USGS	11148900	2008	133.50

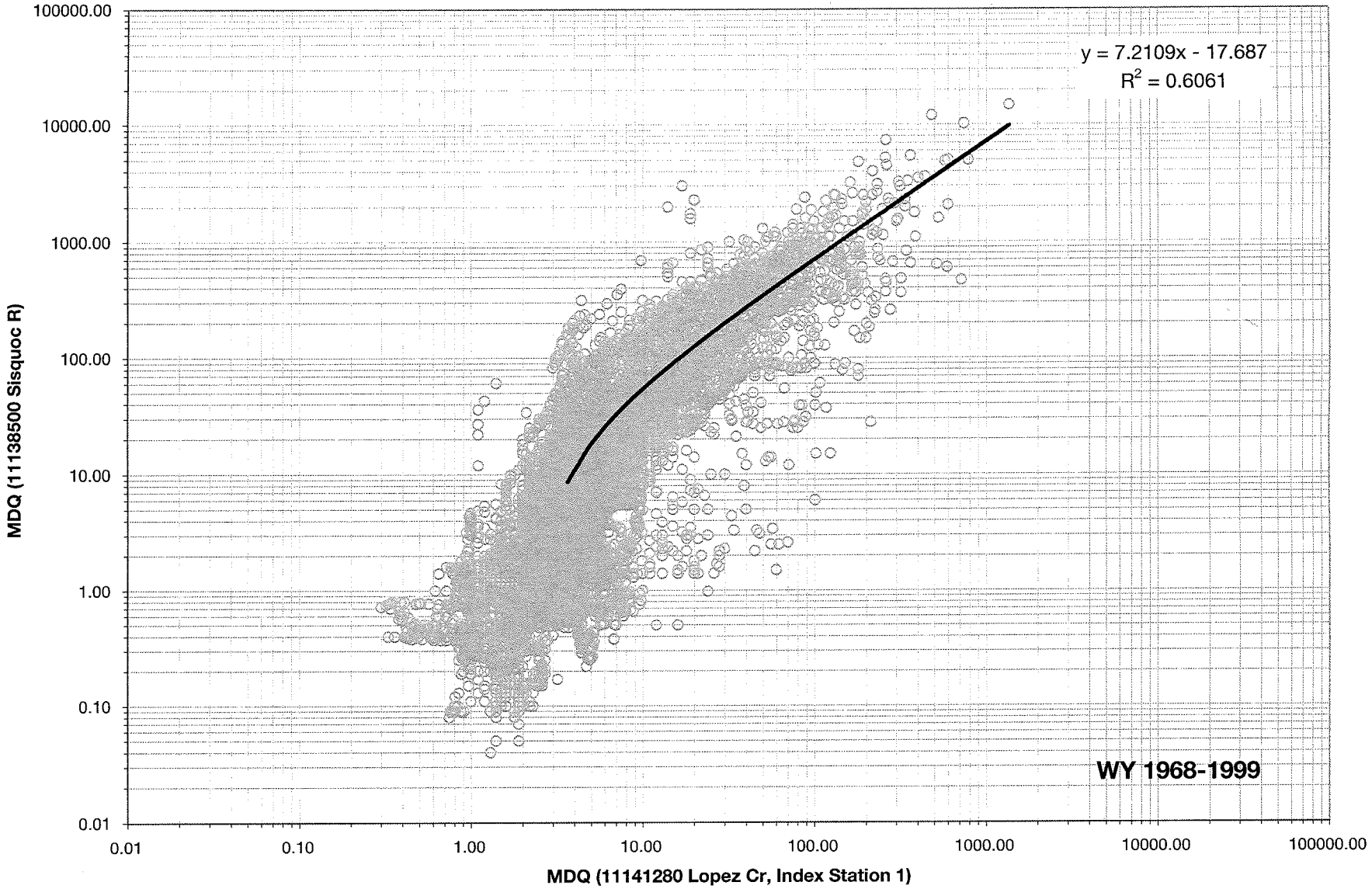
Kendall Rank Correlation for Column 1, Column 2

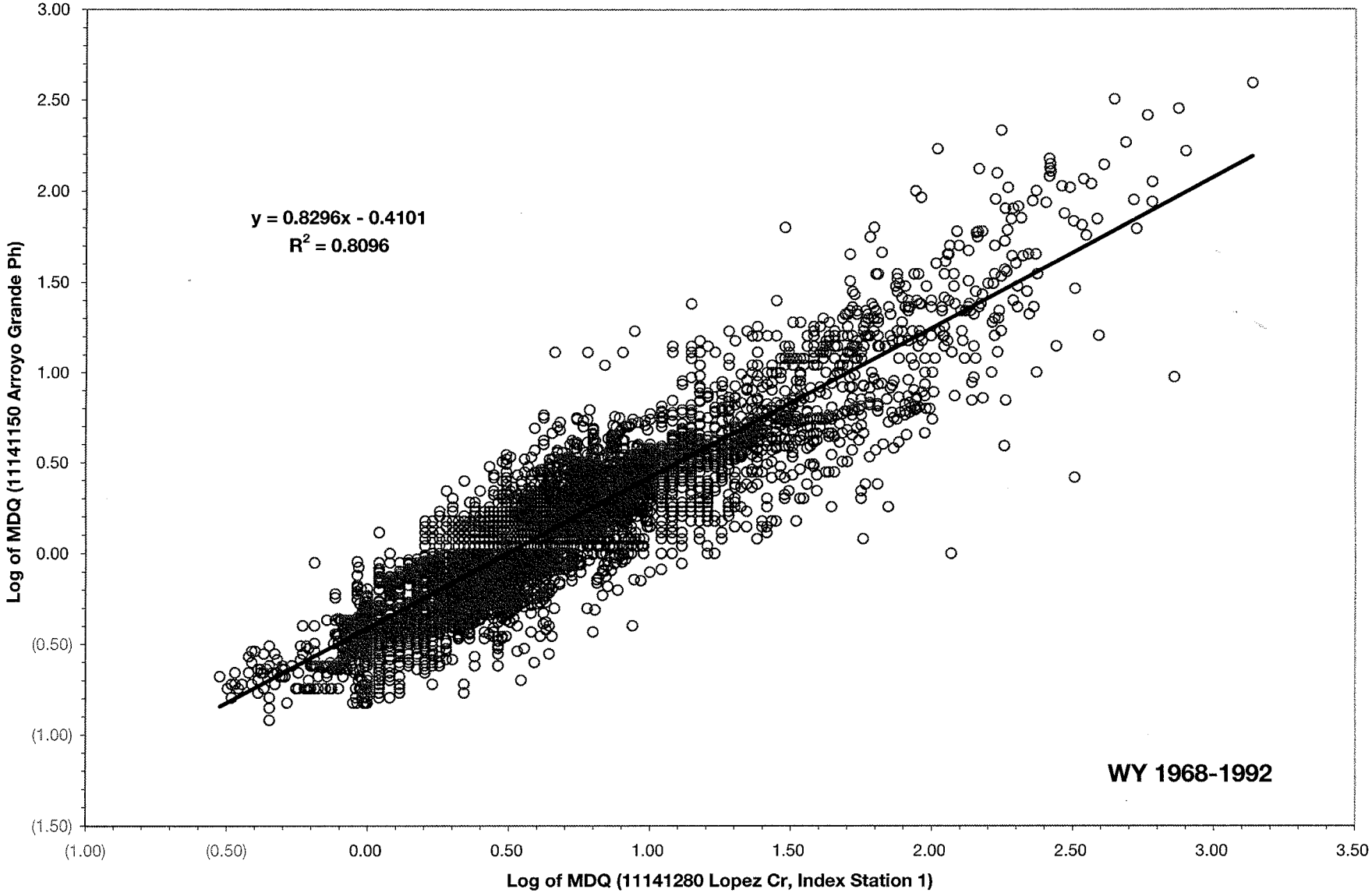
Score	-4.000
Tau	-.006
Z-Value	-.052
P-Value	.9583
Tau corrected for ties	-.006
Tied Z-Value	-.052
Tied P-Value	.9583
# Ties, Column 1	0
# Ties, Column 2	0

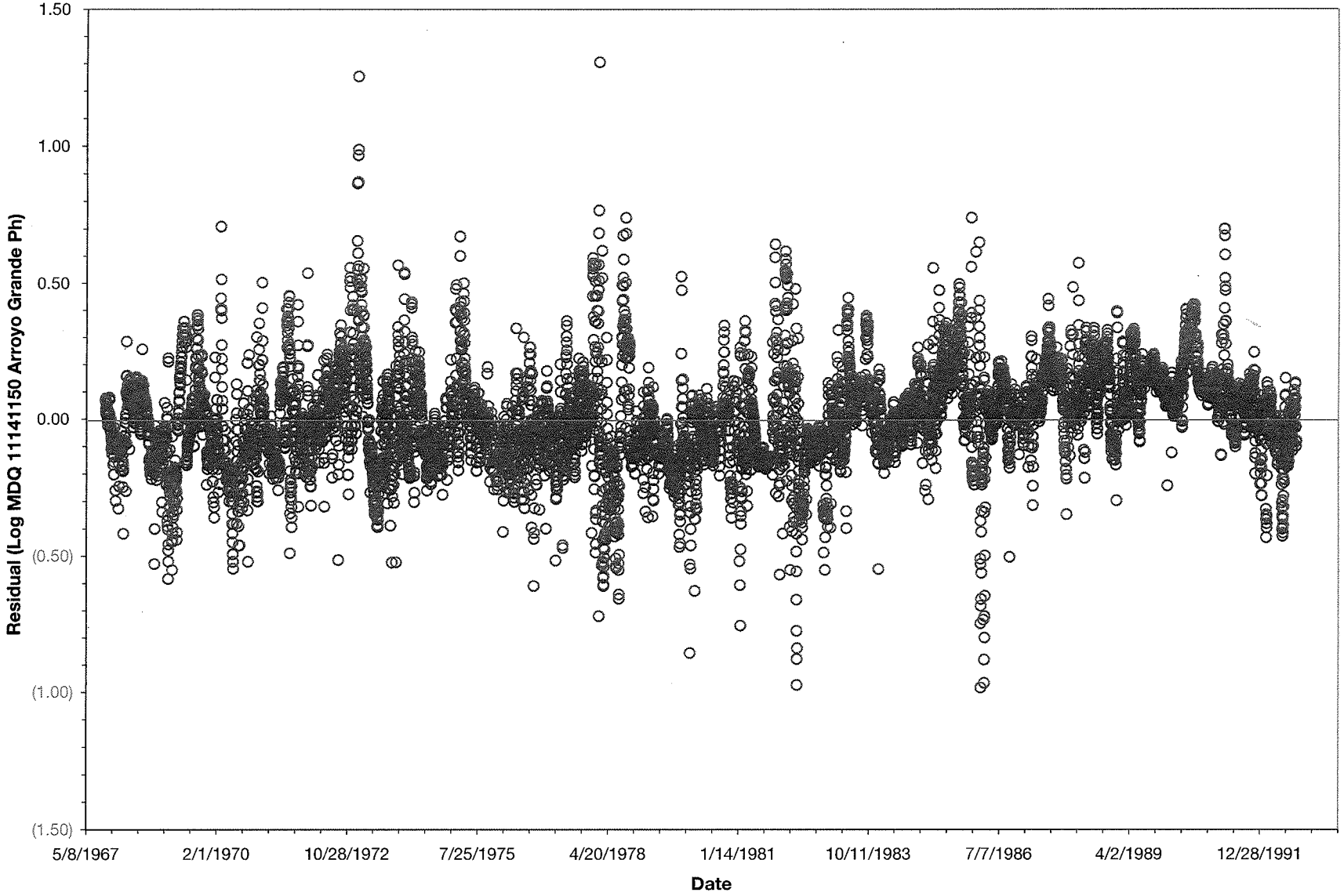
13 cases were omitted due to missing values.

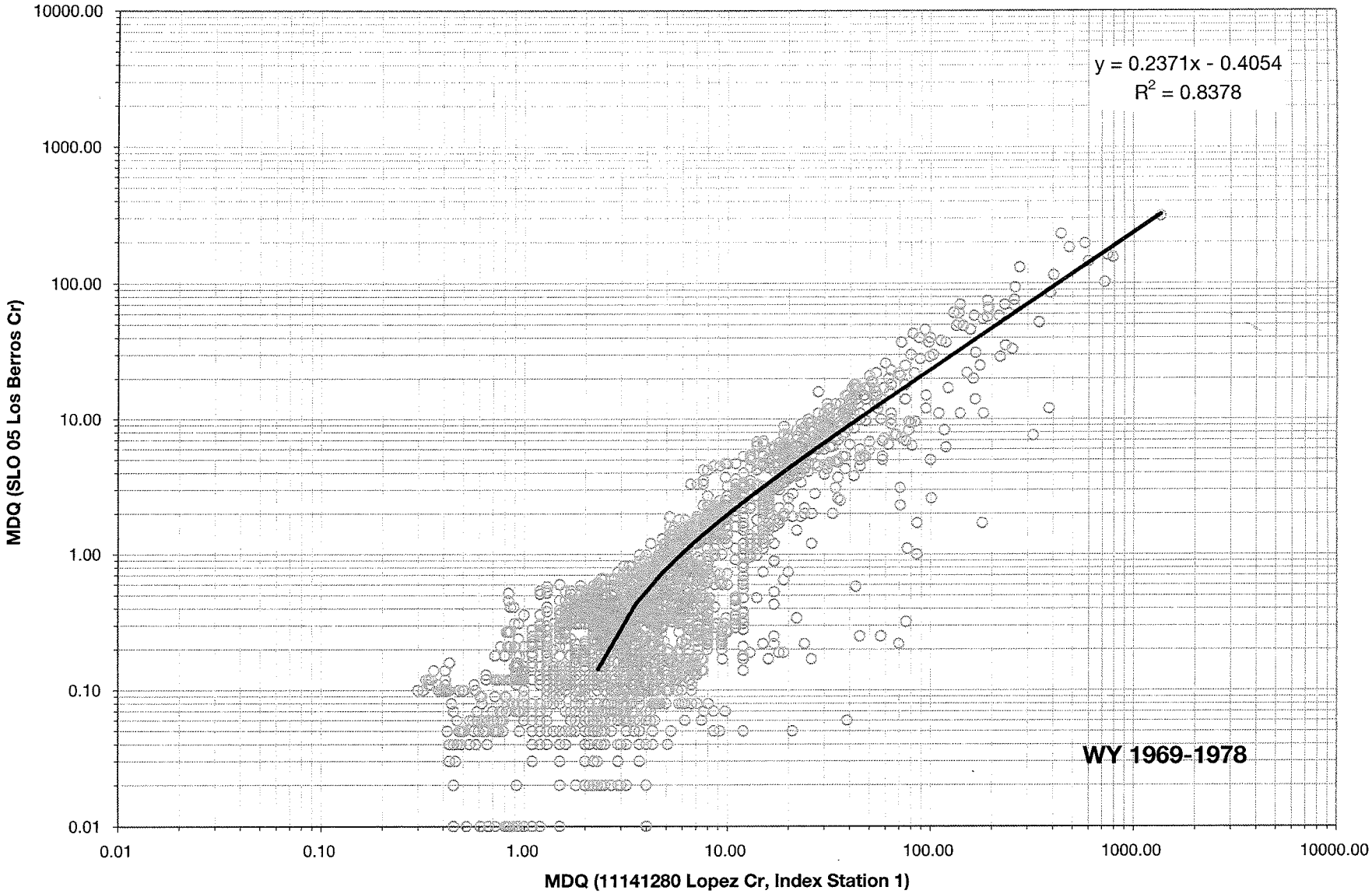
Attachment 3

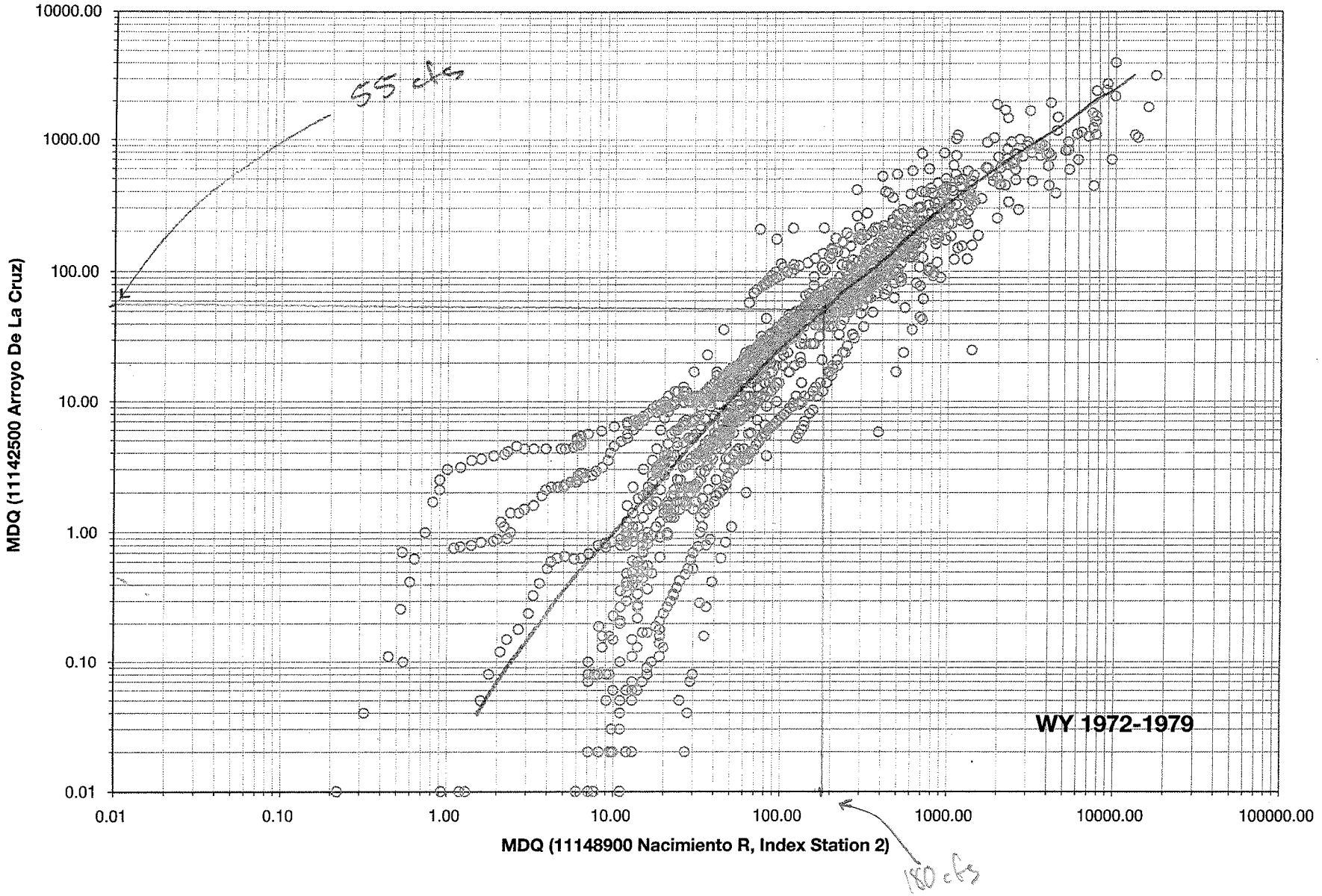
Index and Study Station Regression Analysis

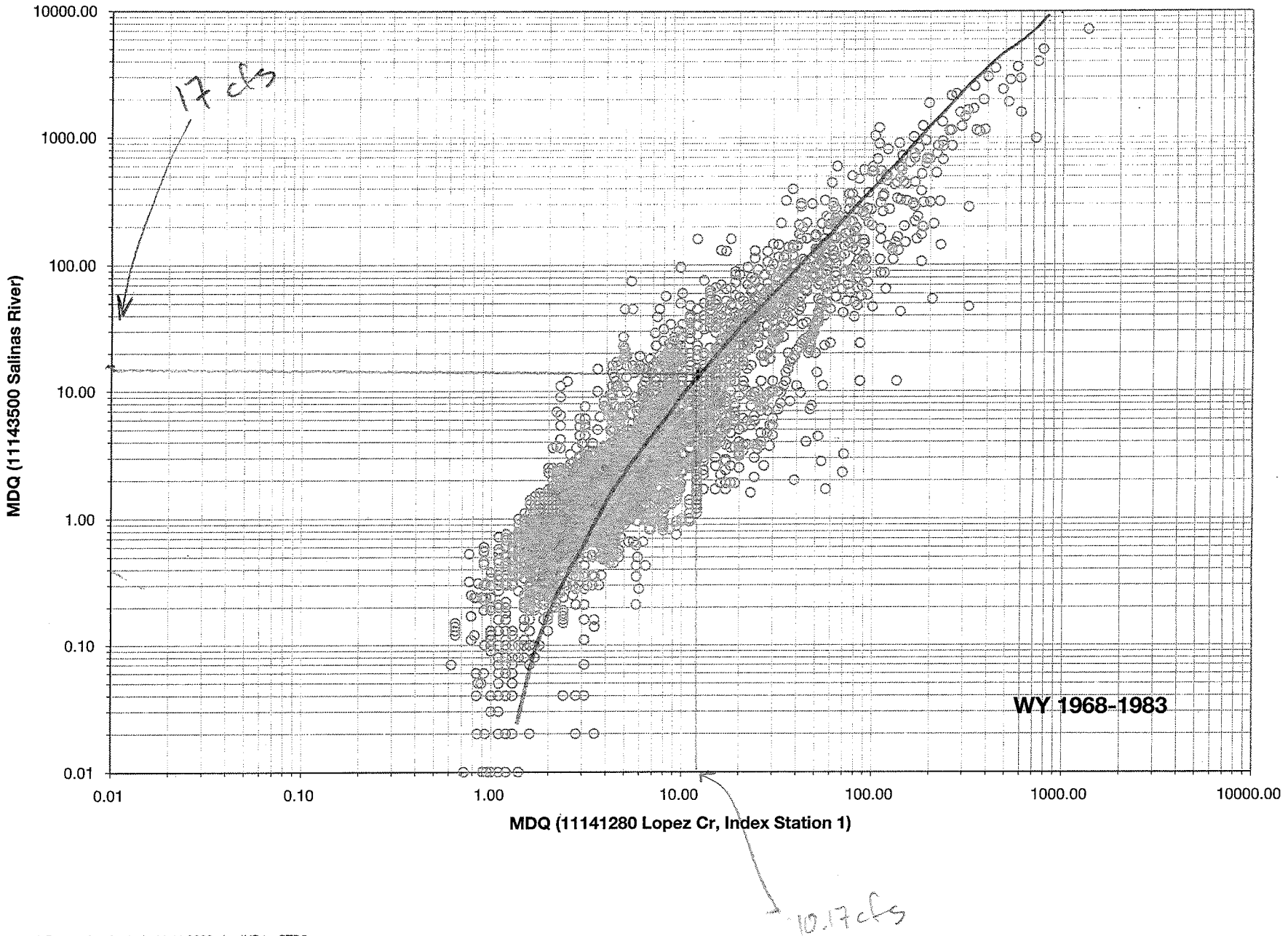

y = 7.2109x - 17.687
R^2 = 0.6061
WY 1968-1999
MDQ (11138500 Sisquoc R)
MDQ (11141280 Lopez Cr, Index Station 1)
100000.00
10000.00
1000.00
100.00
10.00
1.00
0.10
0.01
0.01
0.10
1.00
10.00
100.00
1000.00
10000.00
100000.00

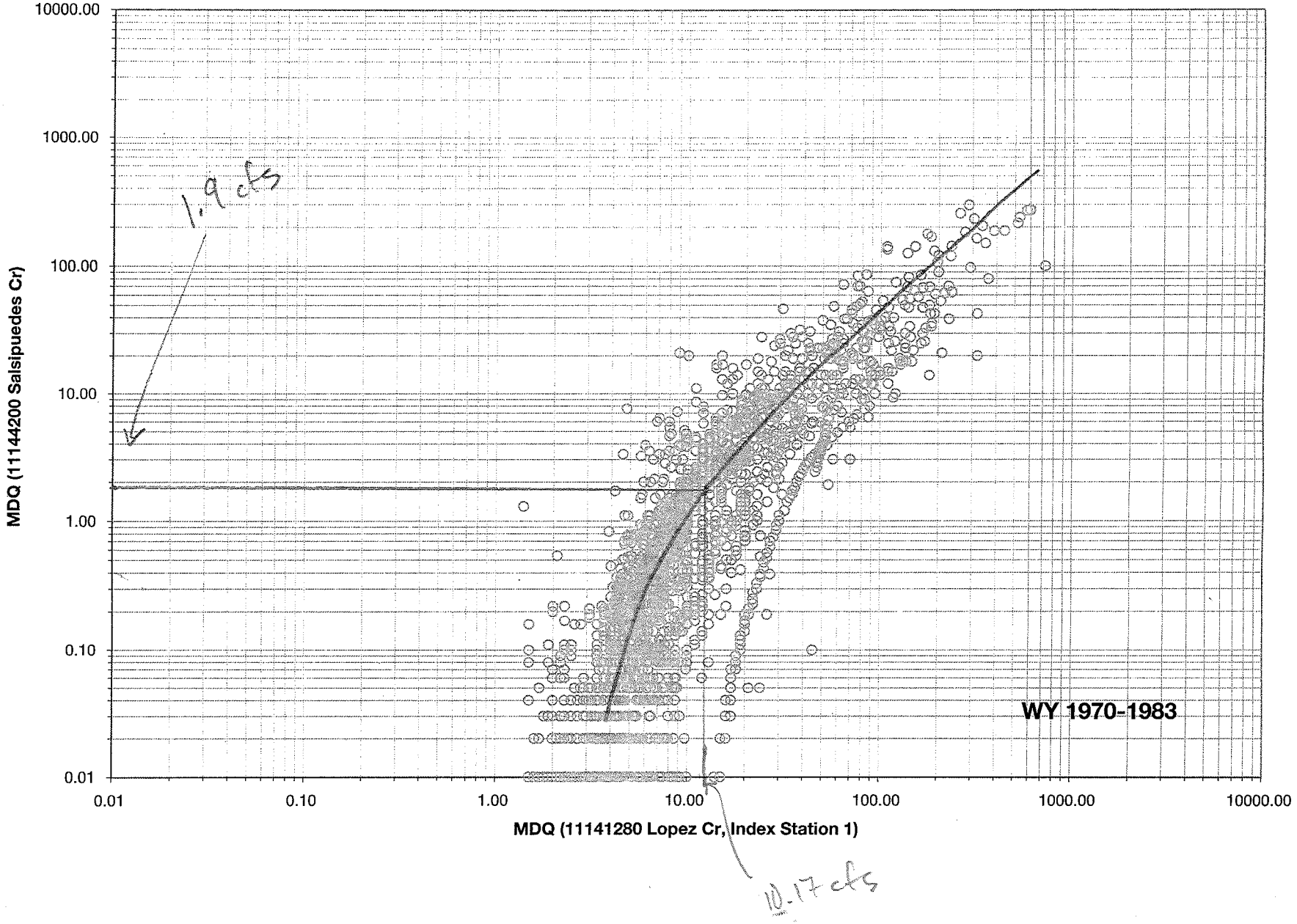

y = 0.8296x - 0.4101
R2 = 0.8096
WY 1968-1992
Log of MDQ (11141150 Arroyo Grande Ph)
Log of MDQ (11141280 Lopez Cr, Index Station 1)
3.00
2.50
2.00
1.50
1.00
0.50
0.00
(0.50)
(1.00)
(1.50)
(1.00)
(0.50)
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50


1.50
1.00
0.50
0.00
(0.50)
(1.00)
(1.50)
Residual (Log MDQ 11141150 Arroyo Grande Ph)
5/8/1967
2/1/1970
10/28/1972
7/25/1975
4/20/1978
1/14/1981
10/11/1983
7/7/1986
4/2/1989
12/28/1991
Date


y = 0.2371x - 0.4054
R^2 = 0.8378
WY 1969-1978
MDQ (SLO 05 Los Berros Cr)
MDQ (11141280 Lopez Cr, Index Station 1)
10000.00
1000.00
100.00
10.00
1.00
0.10
0.01
0.01
0.10
1.00
10.00
100.00
1000.00
10000.00


10000.00
1000.00
100.00
10.00
1.00
0.10
0.01
MDQ (11142500 Arroyo De La Cruz)
55 cfs
WY 1972-1979
0.01
0.10
1.00
10.00
100.00
1000.00
10000.00
100000.00
MDQ (11148900 Nacimiento R, Index Station 2)
180 cfs


10000.00
1000.00
100.00
10.00
1.00
0.10
0.01
MDQ (11143500 Salinas River)
0.01
0.10
1.00
10.00
100.00
1000.00
10000.00
MDQ (11141280 Lopez Cr, Index Station 1)
17 cfs
10.17 cfs
WY 1968-1983


10000.00
1000.00
100.00
10.00
1.00
0.10
0.01
MDQ (11144200 Salsipuedes Cr)
1.9 cfs
WY 1970-1983
0.01
0.10
1.00
10.00
100.00
1000.00
10000.00
MDQ (11141280 Lopez Cr, Index Station 1)
10.17 cfs

Attachment 4

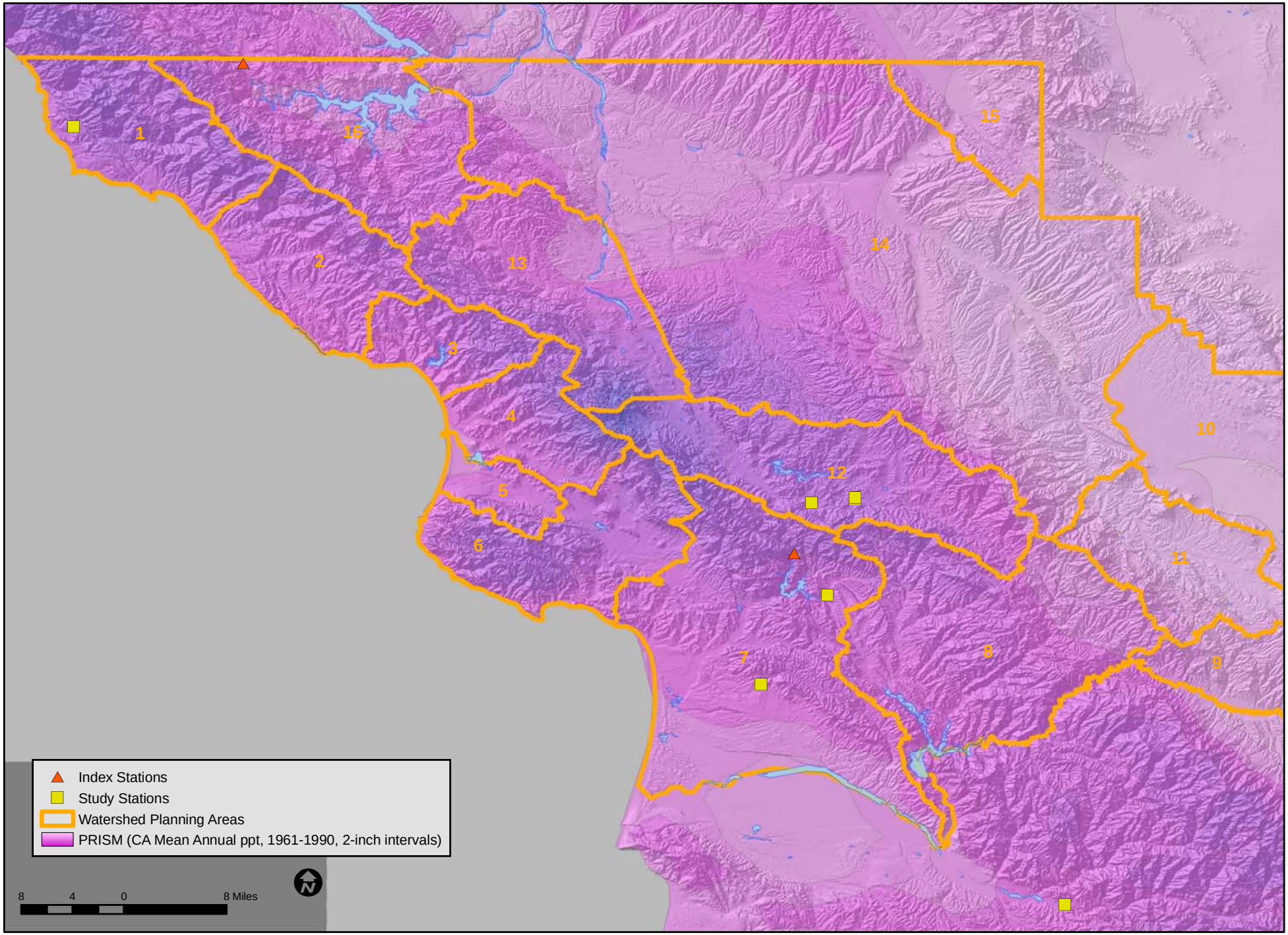
Weighted Mean Annual Discharge (Arroyo Grande and Sisquoc River)

Weighted Mean Annual Discharge (MAD) Calculation

	11141150 Arroyo Grande Ph				11138500 Sisquoc R			
	MAD (cfs)	water year range	years	count (days)	MAD (cfs)	water year range	years	count (days)
MAD (cfs):								
range1 (from gage data)	2.44	1972-1992	21	7670	56.93	1972-1999	28	10227
range2 (from regression)	2.91	1993-2008	16	5844	37.48	2000-2008	9	3287
Weighted MAD (1972-2008) (cfs)	**2.64**				**52.20**			

Attachment 5

Unit Mean Annual Discharge for Index and Study Stations


1
16
15
2
13
14
3
4
10
12
5
6
11
8
7
9
Index Stations
Study Stations
Watershed Planning Areas
PRISM (CA Mean Annual ppt, 1961-1990, 2-inch intervals)
8
4
0
8 Miles

Mean Annual Discharge - Index/Study Stations
(WY 1972-2008)

WPA #	7	16	S. of 8	7	7	1	12	12
WPA Name	South Coast	Nacimiento	Huasna Valley	South Coast	South Coast	San Simeon	Santa Margarita	Santa Margarita
Station Name	Lopez Creek	Nacimiento River	Sisquoc River	Arroyo Grande Ph	Los Berros Creek	Arroyo DeLa Cruz	Salinas River	Salsipuedes Creek
Station No.	11141280	11148900	11138500	11141150	11141600	11142500	11143500	11144200
Station ID	Index 1	Index 2	Study Sta 1	Study Sta 2	Study Sta 3	Study Sta 4	Study Sta 5	Study Sta 6
Latitude	35.235530	35.788579	34.839722	35.188586	35.088032	35.717190	35.298585	35.292752
DA (mi^2)	20.9	162.0	281.0	13.5	15.0	41.2	70.3	5.9
General Regime	Perennial	Ephemeral	Perennial	Perennial	Perennial [1]	Ephemeral	Perennial	Ephemeral
MAD (cfs)	10.17	180.02	52.20	2.64	2.01	55.00	17.00	1.90
Unit MAD (cfs/mi^2)	0.49	1.11	0.19	0.20	0.13	1.33	0.24	0.32
MAD (acre-feet)	7,370	130,453	37,827	1,913	1,457	39,856	12,319	1,377

Notes:
1 Based on water years 1969-1978 (i.e., the USGS data only)

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EWD - SUMMARY
(WY 1972-2008)

WPA #	**1**							
WPA Name	**San Simeon**							
Station Name				Arroyo de la Cruz				Pico Cr
Station No.								
Station ID	11	12	13	14	15	16	17	18
Latitude	35.782313	35.772307	35.738701	35.724013	35.680381	35.680016	35.660101	35.650794
DA (mi^2)	3.3	17.1	5.0	43.4	8.8	6.5	15.2	15.2
Unit MAD derived from:	Ind2, Std4	Ind2, Std4	Ind2, Std4	Std4	Ind2, Std4	Ind2, Std4	Ind2, Std4	Ind2, Std4
Unit MAD (cfs/mi^2)	1.22	1.22	1.22	1.33	1.22	1.22	1.22	1.22
MAD (cfs)	3.98	20.83	6.09	57.71	10.70	7.88	18.51	18.51
MAD (acre-feet)	2,882	15,091	4,412	41,819	7,753	5,711	13,411	13,411
Adult Demand (Dec-Apr):								
(cfs)	8.35	28.29	11.43	59.97	17.32	13.83	25.94	25.94
(cfs/mi^2)	2.56	1.66	2.29	1.38	1.97	2.14	1.71	1.71
(acre-feet)	2,506	8,491	3,430	17,996	5,197	4,149	7,783	7,783
Juvenile Demand (May-Nov):								
(cfs)	4.38	11.68	5.62	21.31	7.82	6.52	10.81	10.80
(cfs/mi^2)	1.34	0.68	1.13	0.49	0.89	1.01	0.71	0.71
Annual 0 flow days (%)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
(acre-feet)[1]	907	2,420	1,164	4,415	1,620	1,351	2,239	2,237
Annual EWD (acre-feet) [2]	**2,882**	**10,911**	**4,412**	**22,410**	**6,817**	**5,500**	**10,022**	**10,021**
Annual EWD ($acre-feet/mi^2$)	**884.1**	**639.2**	**884.1**	**516.5**	**777.3**	**851.4**	**660.7**	**660.6**
Unimpaired MAD for WPA (acre-ft)								**104,491**
Annual EWD for WPA (acre-ft)								**72,975**
EWD/MAD (%)								**69.8%**

Notes:
1 Excludes estimated no. of days with no flow
2 If the calculated EWD is greater than the calculated MAD, then EWD is assumed to be equal to the MAD.

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EWD - SUMMARY
(WY 1972-2008)

WPA #	**2**			**3**		
WPA Name	**Cambria**			**Cayucos**		
Station Name	San Simeon Cr	Santa Rosa Cr	Villa Cr	Cayucos Cr		Toro Cr
Station No.						
Station ID	21	22	23	31	32	33
Latitude	35.617505	35.558596	35.507583	35.482575	35.481812	35.453110
DA (mi^2)	34.8	47.5	25.9	18.0	24.1	15.4
Unit MAD derived from:	Ind2	Ind2	Ind2	Ind1, Ind2	Ind1, Ind2	Ind1, Ind2
Unit MAD (cfs/mi^2)	1.11	1.11	1.11	0.80	0.80	0.80
MAD (cfs)	38.62	52.73	28.78	14.41	19.30	12.30
MAD (acre-feet)	27,984	38,207	20,857	10,441	13,983	8,916
Adult Demand (Dec-Apr):						
(cfs)	44.60	56.11	35.91	21.57	26.75	19.20
(cfs/mi^2)	1.28	1.18	1.39	1.20	1.11	1.25
(acre-feet)	13,384	16,837	10,777	6,472	8,026	5,761
Juvenile Demand (May-Nov):						
(cfs)	16.66	19.96	13.89	9.20	10.94	8.36
(cfs/mi^2)	0.48	0.42	0.54	0.51	0.45	0.54
Annual 0 flow days (%)	30.0	30.0	30.0	30.0	30.0	30.0
(acre-feet)[1]	3,452	4,135	2,877	1,905	2,266	1,732
Annual EWD (acre-feet) [2]	**16,836**	**20,972**	**13,655**	**8,377**	**10,292**	**7,492**
Annual EWD ($acre-feet/mi^2$)	**483.9**	**441.5**	**526.6**	**465.1**	**426.7**	**487.2**
Unimpaired MAD for WPA (acre-ft)			**87,049**			**33,340**
Annual EWD for WPA (acre-ft)			**51,463**			**26,162**
EWD/MAD (%)			**59.1%**			**78.5%**

Notes:
1 Excludes estimated no. of days with no flow
2 If the calculated EWD is greater than the calculated M

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EWD - SUMMARY
(WY 1972-2008)

WPA #	**4**		**5**	**6**			
WPA Name	**Morro Bay**		**Los Osos**	**SLO/Avila**			
Station Name	Morro Cr	Chorro Cr	Los Osos Cr				SLO Cr
Station No.							
Station ID	41	42	51	61	62	63	64
Latitude	35.419954	35.360460	35.297121	35.272507	35.238282	35.198003	35.259129
DA (mi^2)	28.4	46.5	23.1	12.4	17.2	16.4	83.0
Unit MAD derived from:	Ind1, Ind2	Ind1, Ind2	Ind1	Ind1	Ind1	Ind1	Ind1
Unit MAD (cfs/mi^2)	0.80	0.80	0.49	0.49	0.49	0.49	0.49
MAD (cfs)	22.72	37.22	11.31	6.07	8.44	8.06	40.66
MAD (acre-feet)	16,464	26,969	8,199	4,396	6,118	5,838	29,465
Adult Demand (Dec-Apr):							
(cfs)	30.17	43.40	18.05	11.40	14.54	14.05	46.33
(cfs/mi^2)	1.06	0.93	0.78	0.92	0.84	0.85	0.56
(acre-feet)	9,053	13,024	5,416	3,421	4,365	4,216	13,902
Juvenile Demand (May-Nov):							
(cfs)	11.99	16.00	7.86	5.42	6.58	6.38	16.74
(cfs/mi^2)	0.42	0.34	0.34	0.44	0.38	0.39	0.20
Annual 0 flow days (%)	30.0	30.0	30.0	30.0	30.0	30.0	30.0
(acre-feet)[1]	2,485	3,316	1,629	1,124	1,364	1,322	3,469
Annual EWD (acre-feet) [2]	**11,538**	**16,340**	**7,045**	**4,396**	**5,728**	**5,539**	**17,371**
Annual EWD ($acre-feet/mi^2$)	**406.3**	**351.2**	**305.1**	**355.1**	**332.5**	**336.9**	**209.3**
Unimpaired MAD for WPA (acre-ft)		**43,433**	**8,199**				**45,816**
Annual EWD for WPA (acre-ft)		**27,878**	**7,045**				**33,034**
EWD/MAD (%)		**64.2%**	**85.9%**				**72.1%**

Notes:
1 Excludes estimated no. of days with no flow
2 If the calculated EWD is greater than the calculated M

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EWD - SUMMARY
(WY 1972-2008)

WPA #	**7**					**8**		
WPA Name	**South Coast**					**Huasna Valley**		
Station Name	Pismo Cr	Arroyo Grande				Huasna R	Alamo Cr/Huasna R	
Station No.								
Station ID	71	72	73	74	75	81	82	83
Latitude	35.202812	35.170851	35.036416	35.029204	34.959284	35.157884	35.132654	35.087447
DA (mi^2)	40.3	151.8	28.9	13.3	11.9	118.5	100.2	24.2
Unit MAD derived from:	Ind1	Ind1, Std2, Std3	Std3	Std3	Std3	Std2, Std3, Std6	Std1, Std2, Std3	Std1, Std2, Std3
Unit MAD (cfs/mi^2)	0.49	0.27	0.13	0.13	0.13	0.22	0.17	0.17
MAD (cfs)	19.75	40.99	3.75	1.73	1.55	26.07	17.03	4.11
MAD (acre-feet)	14,310	29,701	2,719	1,252	1,122	18,892	12,344	2,981
Adult Demand (Dec-Apr):								
(cfs)	27.21	46.60	8.00	4.52	4.17	33.39	24.40	8.56
(cfs/mi^2)	0.68	0.31	0.28	0.34	0.35	0.28	0.24	0.35
(acre-feet)	8,164	13,984	2,401	1,356	1,250	10,019	7,322	2,569
Juvenile Demand (May-Nov):								
(cfs)	10.87	16.71	4.01	2.53	2.36	12.77	9.90	4.25
(cfs/mi^2)	0.27	0.11	0.14	0.19	0.20	0.11	0.10	0.18
Annual 0 flow days (%)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
(acre-feet)[1]	2,251	3,463	831	524	489	2,646	2,052	881
Annual EWD (acre-feet) [2]	**10,415**	**17,447**	**2,719**	**1,252**	**1,122**	**12,665**	**9,373**	**2,981**
Annual EWD (acre-feet/mi^2)	**258.4**	**114.9**	**94.2**	**94.2**	**94.2**	**106.9**	**93.5**	**123.2**
Unimpaired MAD for WPA (acre-ft)					**49,103**			**34,217**
Annual EWD for WPA (acre-ft)					**32,956**			**25,019**
EWD/MAD (%)					**67.1%**			**73.1%**

Notes:
1 Excludes estimated no. of days with no flow
2 If the calculated EWD is greater than the calculated M

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EWD - SUMMARY
(WY 1972-2008)

WPA #	**12**			**13**		**16**		
WPA Name	**Santa Margarita**			**Atascadero/Templeton**		**Nacimiento**		
Station Name	Salinas R ab	Salinas R bl		Salinas R	Paso Robles Cr	Nacimiento Gage	Nacimiento N	Nacimiento S
Station No.								
Station ID	121	122	123	131	132	161 (Ind2)	162	163
Latitude	35.305700	35.358765	35.381551	35.524672	35.564448	35.788579	35.748751	35.670447
DA (mi^2)	112.1	43.0	37.4	115.9	68.4	162.0	65.3	84.9
Unit MAD derived from:	Std5, Std6	Ind1, Std6	Ind1, Std6	Ind1, Std6	Ind1, Ind2	Ind2	Ind2	Ind2
Unit MAD (cfs/mi^2)	0.28	0.41	0.41	0.41	0.80	--	1.11	1.11
MAD (cfs)	31.39	17.63	15.33	47.52	54.72	180.02	72.48	94.24
MAD (acre-feet)	22,746	12,776	11,112	34,435	39,653	130,453	52,525	68,291
Adult Demand (Dec-Apr):								
(cfs)	38.28	25.03	22.58	51.97	57.66	138.70	70.94	86.08
(cfs/mi^2)	0.34	0.58	0.60	0.45	0.84	0.86	1.09	1.01
(acre-feet)	11,488	7,510	6,776	15,595	17,304	41,620	21,288	25,831
Juvenile Demand (May-Nov):								
(cfs)	14.41	10.27	9.47	18.72	20.41	42.03	24.44	28.39
(cfs/mi^2)	0.13	0.24	0.25	0.16	0.30	0.26	0.37	0.33
Annual 0 flow days (%)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
(acre-feet)[1]	2,985	2,129	1,963	3,878	4,229	8,707	5,062	5,882
Annual EWD (acre-feet) [2]	**14,473**	**9,638**	**8,739**	**19,473**	**21,533**	**50,327**	**26,350**	**31,713**
Annual EWD ($acre-feet/mi^2$)	**129.1**	**224.1**	**233.7**	**168.0**	**314.8**	**310.7**	**403.5**	**373.5**
Unimpaired MAD for WPA (acre-ft)			**46,633**		**74,088**			**251,269**
Annual EWD for WPA (acre-ft)			**32,850**		**41,006**			**108,390**
EWD/MAD (%)			**70.4%**		**55.3%**			**43.1%**

Notes:
1 Excludes estimated no. of days with no flow
2 If the calculated EWD is greater than the calculated M

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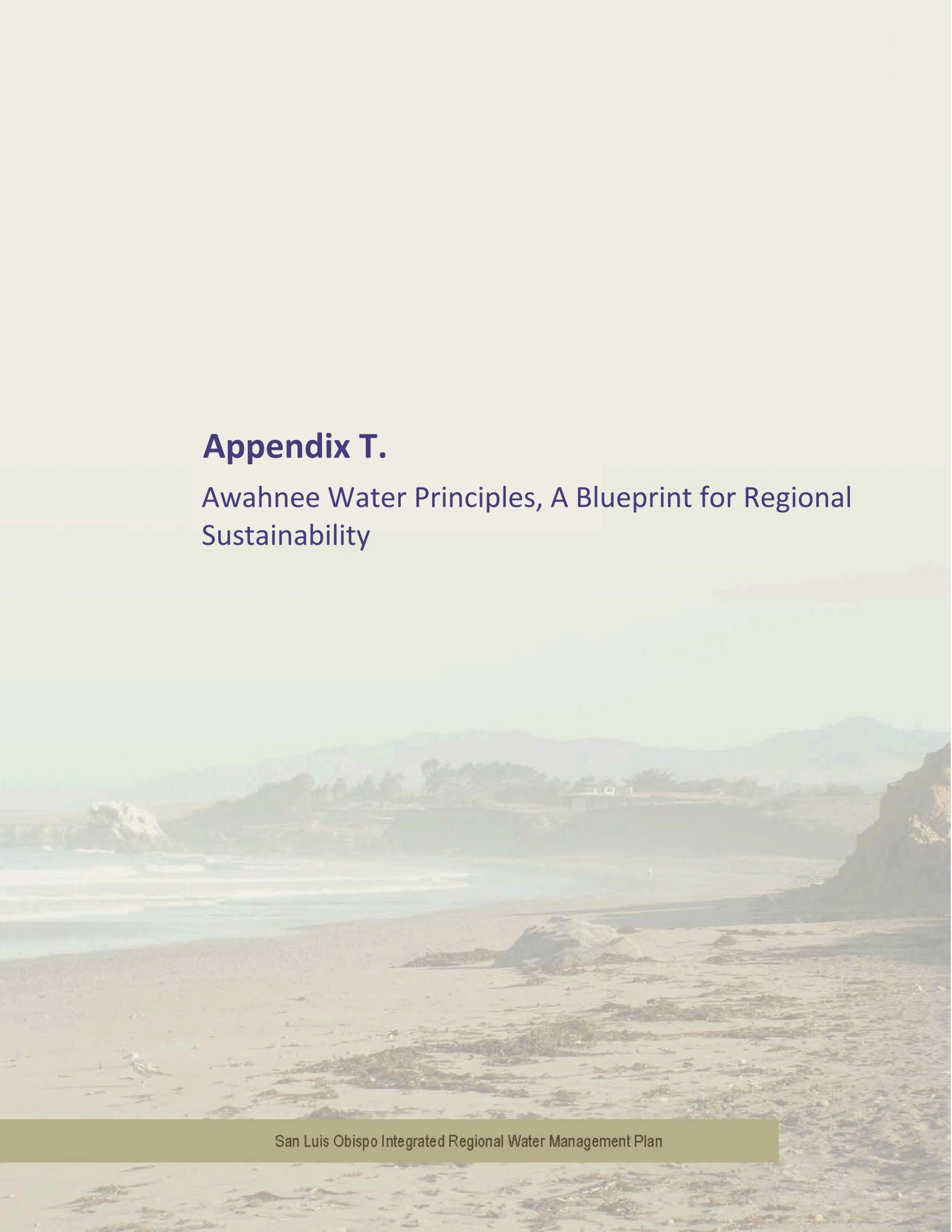
Appendix T.

Awahnee Water Principles, A Blueprint for Regional Sustainability



The Ahwahnee Water Principles

A Blueprint for Regional Sustainability

Local Government Commission

Acknowledgements

The Local Government Commission extends its deepest gratitude to the authors of the Ahwhanee Water Principles. This dedicated group of individuals also served as a special advisory committee to this project and gave generously of their time and expertise to help develop this guidebook.

- Celeste Cantú, Executive Director, California State Water Resources Control Board
- Martha Davis, Executive Manager for Policy Development, Inland Empire Utilities Agency
- Jennifer Hosterman, Pleasanton Mayor
- Susan Lien Longville, Director, Water Resources Institute, CSU San Bernardino
- John Lowrie, CALFED Watershed Program Manager
- Jeff Loux, Director, Land Use and Natural Resource Program, UC Davis Extension
- Jake Mackenzie, Rohnert Park Councilmember
- Jonas Minton, Senior Project Manager, Planning and Conservation League
- Mary Nichols, Director, UCLA Institute of the Environment
- Alfred Wanger, Deputy Director, Energy, Ocean Resources and Water Quality Division, California Coastal Commission
- Robert Wilkenson, Water Policy Program Director, Bren School of Environmental Science and Management, UC Santa Barbara
- Kevin Wolf, Principal, Wolf and Associates

The authors are grateful for the helpful review and contributions of Steve Lipman to the guidebook's introduction and those of Oliver Ibrien to the section on stretching our water supplies, as well as editing assistance from Erin Hauge and Nancy Mathison.

We are also indebted to many other individuals and organizations who provided resources and information for this guidebook. A special thanks to Ahmad Kashkoli with the State Water Board; Steve Lipman; Ken Kay and KenKay Associates; Oscar Balaguer, Chief, Certification and Wetlands Unit, Division of Water Quality, State Water Board; Vicki Musgrove and Richard Bradley with the City of Ventura; Maria Wong of the Yolo County Natural Community Conservation Plan Joint Powers Authority; Lisa Nisenson; Lynn Richards with the U.S. EPA; Maureen Middlebrook of the Sonoma County Agricultural Preservation and Open Space District; the Nonpoint Education for Municipal Officials; California Water and Land Use Partnership; the Inland Empire Utilities Agency; Sacramento Area Council of Governments; the Water Education Foundation; the City of San Jose; the Irvine Ranch Water District; the California Urban Water Conservation Council; and Darren Greenwood with the City of Livermore. Finally, we would like to thank the State Water Board for project funding and guidance.

Also, we would like to thank those who graciously provided images for use in the guidebook, including Nonpoint Education for Municipal Officials, KenKay Associates, Steven Joseph, the Department of Water Resources, the City of San Jose, the City of Portland, Inland Empire Utilities Agency, Sonoma County Agricultural Preservation and Open Space District, the San Francisco Chronicle and the Water Education Foundation.

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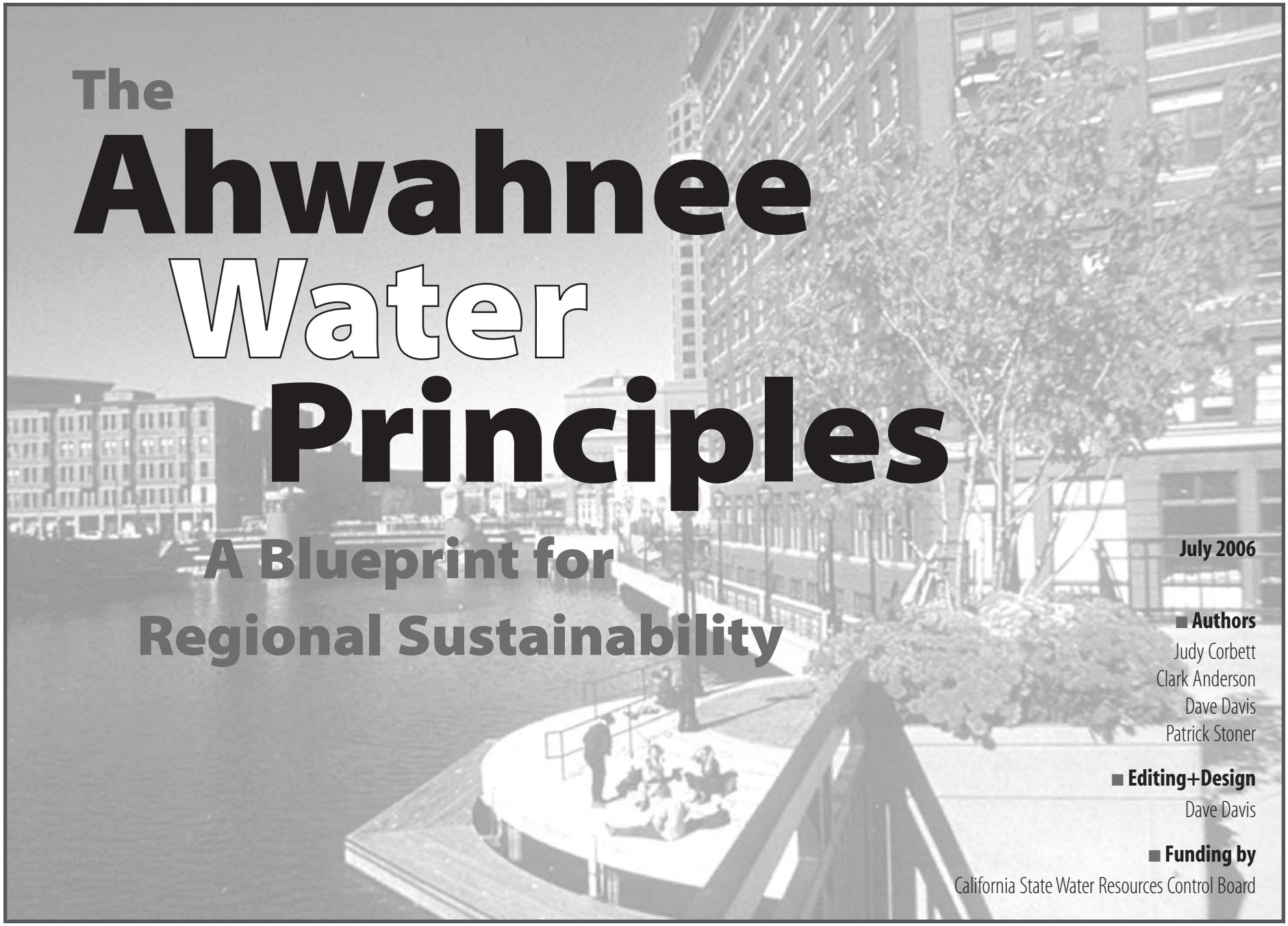

The Ahwahnee Water Principles

A Blueprint for Regional Sustainability

July 2006

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Table of Contents

Introduction 1

New responsibilities for managing California's water supplies 2

Thinking regionally – The watershed 3

Meeting our future water needs 4

The Ahwahnee Water Principles 5

I. Growing in a Water-Wise Manner 8

Today's growth patterns 9

The water supply impact of growing on greenfields 10

Understanding water quality regulations in California 11

Water supply legislation 12

Economic implications 13

Principle 1: How we grow 14

Principle 2: Where we grow 19

II. Water-Friendly Site Design 28

Principle 3: Maximize permeability in developed areas 30

Principle 4: Water-wise landscaping 34

Principle 5: Minimize impervious surface cover 38

III. Stretching Our Water Supplies 41

Principle 6: Graywater reuse 42

Principle 7: Water recycling 44

Principle 8: Water conservation 50

Principle 9: Cleaning up groundwater supplies 53

IV. Implementing the Ahwahnee Water Principles 55

Implementation Principle 1: Coordination is key 56

Implementation Principle 2: Regional collaboration 59

Implementation Principle 3: Integrated solutions achieve multiple benefits 64

Implementation Principle 4: Public involvement and stakeholder collaboration 66

Implementation Principle 5: Evaluate and adapt 67

Selected Resources 69

End Notes 72

Appendix A. The Model Water Element 74

"Watersheds not only connect our land and water, they connect our communities. We cannot sustain vibrant, livable communities if we cannot sustain clean and reliable water supplies."

– Mary Jane Griego, Yuba County Board of Supervisors

Introduction

While in California in the later part of the 19th century, Mark Twain observed, "Whiskey is for drinking…water is for fighting." The tensions and concerns over sufficient water to meet the needs of California reflected in Twain's humorous comment are as true today as they were over 100 years ago.

Safe, clean water is essential to California, its nearly 37 million residents, its vibrant and diverse economy, and its cherished quality of life. However, accessible quantities of clean water adequate to meet California's current and projected future needs are limited and relatively finite. It is becoming increasingly evident to policy-makers that to accommodate the often competing needs of various end-users, while providing for continued demographic and economic growth, requires careful, forward-thinking management of California's water resources.

Responsibility for balanced, effective water management in California is increasingly borne by government at the local level. In 2001, state legislators recognized the need to tie future development to the availability of water in enacting Senate Bills 221 and 610. This legislation, sometimes referred to as the "show me the water laws," requires that before local jurisdictions can approve new, large residential and commercial projects, the project must receive written verification from the local water agency that there are sufficient water resources to sustain the growth projected by the project.

However, the reverse is also true. The loss of water resources forces the loss of population and businesses. For example, in in west Fresno County where several towns are now facing diminishing water resources, a lack of water is causing some residents to move out of the area. This population loss is presenting formidable economic challenges for these communities. [1]

New responsibilities for managing California's water supplies

In addressing the state's population growth, predicted to jump another 12 million people by 2030, community and regional land use decision-making by local jurisdictions will directly impact the distribution of California's water resources. [2]

Competition for adequate supplies of water has long-produced tensions between rural and agricultural California and rapidly growing urban, suburban and exurban California. This competition and the resulting tensions will almost certainly intensify unless local governments mitigate these competing interests by looking to cost-effective, long-term policies that efficiently manage and distribute available water resources.

Furthermore, responsibility for the safety and protection of California's water is now increasingly placed with local and regional government agencies. Federal and state laws mandate regulatory oversight at the local level, including water supply and safety, stormwater management, pollution mitigation and flood control.

However, the responsibility for meeting these requirements is accompanied by growing concerns over legal and financial liabilities that city and county governments may face.

Taken together, the requirements of the new water supply laws and regulatory programs are pushing California's local governments to see the need to coordinate their planning and development processes with water management efforts.

Local governments' increasing concern about adequately managing water resources also extends to protecting and preserving California's precious quality of life. The demands of increasing population, agricultural and commercial operations, changing land use and expanding urbanization affect and, in some cases, threaten California's ecology, natural places and resources. Shortsighted land use planning threatens the state's natural treasures, including aquifers, lakes, rivers, streams and watersheds.

Sound, thoughtful management of our water resources – how water is captured and controlled, how it is treated, used and released – is an issue that local governments cannot afford to ignore. Around the United States, local officials are embracing new land use policies that protect and maximize local water resources, reduce the cost of stormwater permits,

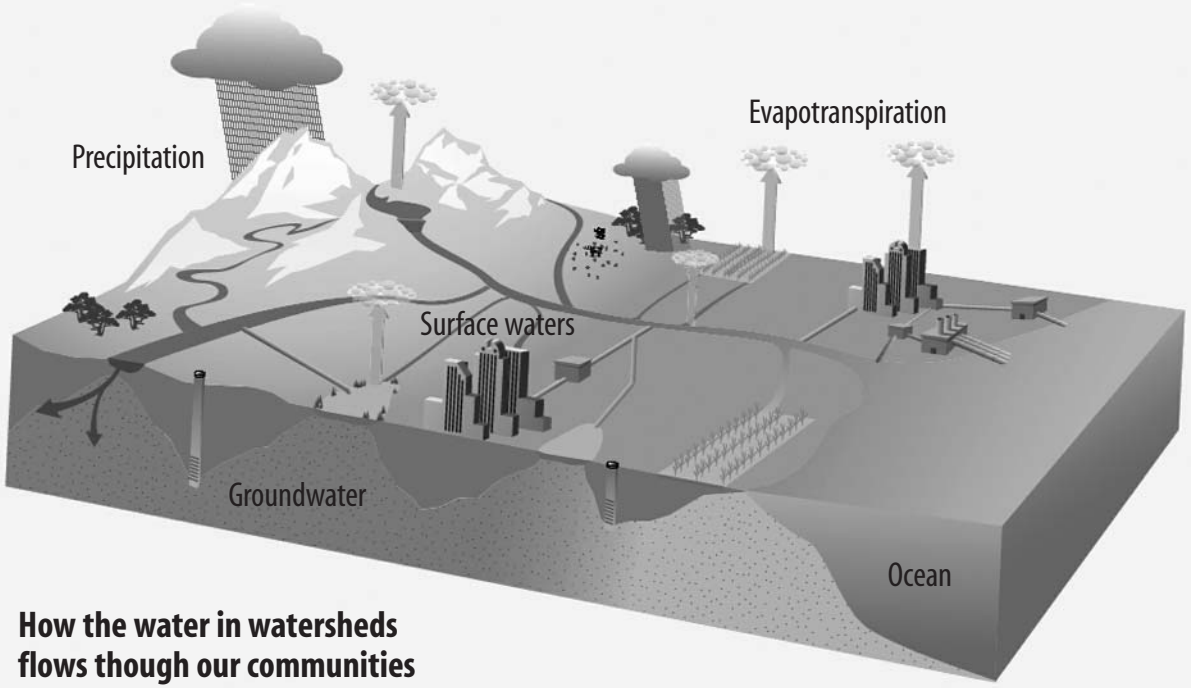
lessen the possibility of fines for violating water quality standards, and limit the impacts of flooding on rapidly developing floodplains. Communities are looking ahead, and planning and investing to meet current and projected future demands for water supply, quality and the environmental health needed to sustain them. They understand that their land use decisions seriously impact those water resources. This guidebook is intended to help officials at the local and regional level become active partners in protecting local water resources and watersheds.

Thinking regionally – The watershed

Every river we see is part of an area of land – a watershed – that catches and drains the water that falls within it. A watershed is a network of water, a geographic area in which water, solids, sediments and dissolved materials drain and flow to a common outlet – a point on a larger stream, a lake, an underlying aquifer, an enclosed bay, an estuary or, in California, the Pacific Ocean.

All land, developed or not, is part of a watershed. When rain falls, it becomes a part of the watershed it falls in. The water in a watershed is connected by the streams, lakes and wetlands we see on the surface, which are also tied to groundwater basins below the ground.

Watersheds are critical to the health and welfare of our communities. They are the source of our water; they maintain our forests, agriculture and fisheries; they feed our rivers, lakes, groundwater and estuaries; and they provide essential wildlife habitat and innumerable natural services we depend on.



How the water in watersheds flows though our communities

source: Department of Water Resources

In addition to providing our drinking water, California's watersheds sustain economic and recreational activities throughout the state, including tourism, commercial and recreational fishing, boating and rafting.

Of course, the natural boundaries that define watersheds are not the same as the political boundaries of cities and counties. Watersheds may span multiple jurisdictions, which means separate communities and their water supplies are connected by the watershed they share.

In hydrologic terms, California can be broken into 10 watershed regions – North Coast, San Francisco, Central Coast, South Coast, Sacramento River, San Joaquin River, Tulare Lake, North Lahontan, South Lahontan and Colorado River – each with its own climate, ecology and geographic characteristics From a regulatory perspective, California's watersheds are arranged into nine Regional Water Quality Control Boards.

Meeting our future water needs

Because watersheds are dynamic and fragile systems, the challenges to maintaining and sustaining vital watersheds are becoming increasingly complex.

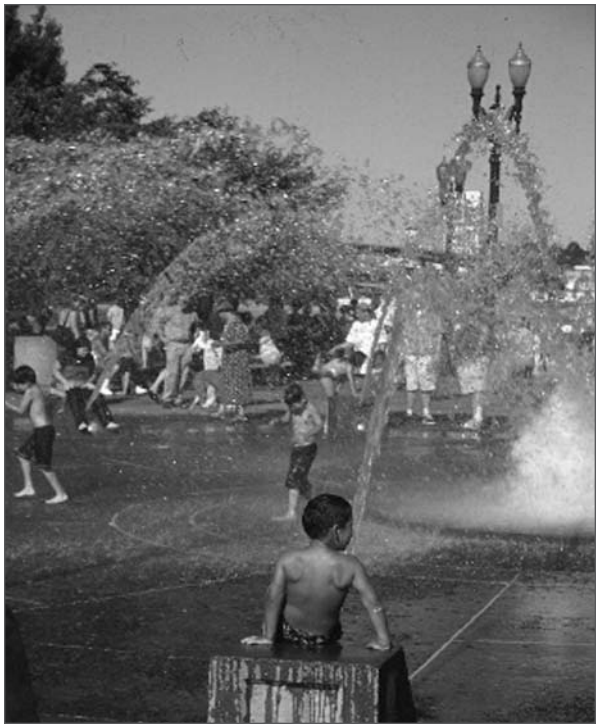
Population increases and economic growth will be accompanied by more housing and commercial development. This means that previously open land will be covered by asphalt, concrete and similar impervious surfaces, impairing water from percolating into the ground and replenishing underground aquifers. This will reduce available water supplies at a time when the demand for water will be increasing.

To make matters worse, as it flows across parking lots and streets, runoff water will gather up refuse, oil and other contaminants and pollute our local water supplies.

Unless the relationships between water supply, growth and development are better managed, California's watersheds will become increasingly polluted. Their vital natural functions to collect and cleanse our water supplies, provide commercial and recreational opportunities and wildlife habitat will be impaired and possibly permanently destroyed.

Global warming represents yet another challenge to California's future water supplies. Warmer temperatures will produce a smaller snowpack and more winter runoff. This means more floodwaters to manage in the winter followed by less snow melt to bank in reservoirs for drinking water, summer lawns and crop irrigation.

It cannot be stressed enough that California's available water resources are limited and unpredictable. Much of California is arid and prone to drought; in the past 75 years, in fact,



California has experienced three major droughts – from 1929-34, 1976-77 and, most recently, 1987-92.

The way most California communities supplement local supplies is by importing water. Unfortunately, the principal sources of imported water are becoming increasingly unavailable. Today, most of Central and Southern California's water comes from the San Francisco Bay-San Joaquin River Delta, which provides water for two-thirds of California residents. This water also irrigates a substantial portion of California's farms, is the state's most important fishery habitat, and is home to more than 10,000 species of migratory fowl. But the Delta itself is under severe strains.

Nor can California, especially the southern part of the state, continue to rely so heavily on water imported from the Colorado River. Currently, it is California's other major source of imported water. But regulatory requirements limit California's claim on water from the Colorado River. The needs of other states in the Colorado Basin, the impact of severe, prolonged drought, and questions of water quality limit the Colorado River as a reliable source of water for California's future needs.

Still, the picture of water resource management in California is not entirely bleak. There are practical actions that cities and counties can take that will ensure a future water supply for their communities.

The Ahwahnee Water Principles for Resource-Efficient Land Use

In 2004, the Local Government Commission set out to identify effective, least-cost economically and politically viable options for sustainable water resources management at the local level. The LGC invited respected water resource policy, management and planning professionals – with experience at the federal, state and local levels – to craft a set of land use principles which would provide guidance to local officials and communities concerned about sustaining future water supplies.

The process of developing the Ahwahnee Water Principles mirrored the LGC's earlier Ahwahnee Principles for Resource-Efficient Communities, which were released in 1991. The Ahwahnee Principles presented a blueprint for elected officials to create compact, mixed-use, walkable, transit-oriented developments in their local communities, and have since paved the way for growing acceptance and inclusion of "smart growth" and the "New Urbanism" in local and regional land-use policies and practices.

In March 2005, the Ahwahnee Water Principles for Resource-Efficient Land Use, in a format that could be incorporated into a community's general plan, were presented to an audience of more than 100 mayors, city councilmembers and county supervisors at the Ahwahnee Hotel in Yosemite, where they were enthusiastically received.

The Ahwahnee Water Principles – comprised of nine community principles and five precepts to implement these community objectives – provide a practical blueprint for sustainable land-use practices that can improve the reliability and quality of water resources and reduce some of the financial liabilities that new development places on local government.

These principles are practical actions that cities and counties can take as good stewards of California's water resources by ensuring that new development and redevelopment minimize the risks and impacts of stormwater runoff, ground and surface water contamination and flooding.

At the same time, these steps can help ensure that communities will have water resources adequate to serve existing and new businesses and residents. These strategies are efficient, effective, least-cost options, which can help avoid communities being dependent on expensive and potentially unreliable imported supplies of water from outside their area, or undertaking costly cleanup or water treatment measures. Implementation rests with county boards of supervisors and city councils exercising their planning and land use authorities.

The Ahwahnee Water Principles

■ Preamble

Cities and counties are facing major challenges with water contamination, stormwater runoff, flood damage liability, and concerns about whether there will be enough reliable water for current residents as well as for new development.

These issues impact city and county budgets and taxpayers. Fortunately there are a number of stewardship actions that cities and counties can take that reduce costs and improve the reliability and quality of our water resources.

The Water Principles complement the Ahwahnee Principles for Resource-Efficient Communities that were developed in 1991. Many cities and counties are already using them to improve the vitality and prosperity of their communities.

■ Community Principles

1 Community design should be compact, mixed use, walkable and transit-oriented so that automobile-generated urban runoff pollutants are minimized and the open lands that absorb water are preserved to the maximum extent possible. *[See the Ahwahnee Principles for Resource-Efficient Communities]*

2 Natural resources such as wetlands, floodplains, recharge zones, riparian areas, open space and native habitats should be identified, preserved and restored as valued assets for flood protection, water quality improvement, groundwater recharge, habitat and overall long-term water resources sustainability.

3 Water holding areas such as creek beds, recessed athletic fields, ponds, cisterns and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape.

4 All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater.

5 Permeable surfaces should be used for hardscape. Impervious surfaces such as driveways, streets and parking lots should be minimized so that land is available to absorb stormwater, reduce polluted urban runoff, recharge groundwater and reduce flooding.

6 Dual plumbing that allows graywater from showers, sinks and washers to be reused for landscape irrigation should be included in the infrastructure of new development.

7 Community design should maximize the use of recycled water for appropriate applications including outdoor irrigation, toilet flushing, and commercial and industrial processes. Purple pipe should be installed in all new construction and remodeled buildings in anticipation of the future availability of recycled water.

8 Urban water conservation technologies such as low-flow toilets, efficient clothes washers and more efficient water-using industrial equipment should be incorporated in all new construction and retrofitted in remodeled buildings.

9 Groundwater treatment and brackish water desalination should be pursued when necessary to maximize locally available, drought-proof water supplies.

■ Implementation Principles

1 Water supply agencies should be consulted early in the land use decision-making process regarding technology, demographics and growth projections.

2 City and county officials, the watershed council, LAFCO, special districts and other stakeholders sharing watersheds should collaborate to take advantage of the benefits and synergies of water resource planning at a watershed level.

3 The best, multi-benefit and integrated strategies and projects should be identified and implemented before less integrated proposals, unless urgency demands otherwise.

4 From start to finish, projects and programs should involve the public, build relationships, and increase the sharing of and access to information. The participatory process should focus on ensuring that all residents have access to clean, reliable and affordable water for drinking and recreation.

5 Plans, programs, projects and policies should be monitored and evaluated to determine if the expected results are achieved and to improve future practices.

Authors: Celeste Cantú, Martha Davis, Jennifer Hosterman, Susan Lien Longville, Jeff Loux, Jake Mackenzie, Jonas Minton, Mary Nichols, Virginia Porter, Al Wanger, Robert Wilkinson and Kevin Wolf. Editor: Judy Corbett.

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Model Water Element for General Plans

In conjunction with the Ahwahnee Water Principles, a Model Water Element has been drafted. A compilation of some of the best general-plan language available, drawn from existing city and county general plans, this model element can be tailored to fit any community plan once the individual characteristics of the watershed have assembled (see Appendix A). This model element can also help cities and counties examine the interconnections within watersheds, in the hope that it will guide the way for new partnerships with other entities for their mutual benefit.

■ The Ahwahnee Water Principles can be grouped into four categories:

I. Growing in a water-wise manner [Principles 1-2]: Forms that new development should, and should not, take to accommodate population growth and accompanying development and transportation needs without destroying watersheds – including the natural infrastructure of wetlands, floodplains, recharge zones, riparian areas, open space and native habitats that supply our water.

II. Water-friendly site design [Principles 3-5]: Neighborhood and site-scale planning and design strategies that can be used to protect water quality, maximize existing supplies, reduce flood risks, and handle runoff more wisely.

III. Stretching our water supplies [Principles 6-9]: To ensure reliable water supplies in the future, communities need to make the most efficient use of existing supplies. This includes graywater for reuse in the home, office or landscaping, use of water-efficient technologies and designs, and stretching groundwater supplies through treatment and desalinization.

IV. Implementation principles: These five precepts can help local governments put the Ahwahnee Water Principles into action through strategies for implementing compact growth patterns, water-friendly site design and water conservation. They provide practical steps to make the physical changes necessary to ensure water sustainability.

As a follow-up to the Ahwahnee Water Principles, the State Water Board is developing a model letter that regional water boards can use in commenting on general plan Environmental Impact Reports. The letter asks cities and counties to fully consider how their general plan updates will affect water quality, encourages planning to avoid adverse effects, and cites the Ahwahnee Water Principles as a source of policy level principles to address water supply/quality problems stemming from urban development.

The League of California Cities and the California State Association of Counties have adopted resolutions that encourage their members to consider the Ahwahnee Water Principles, and individual jurisdictions have begun to adopt them as local policy.

I. Growing in a Water-Wise Manner

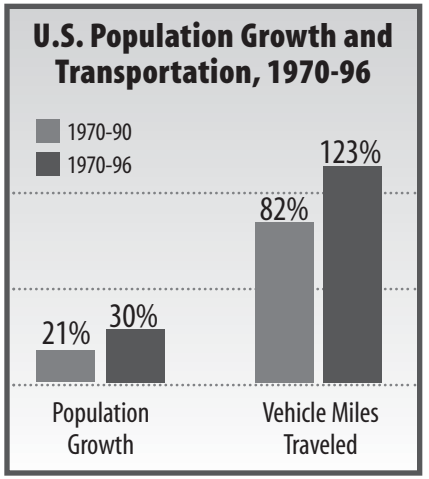
To accommodate growth and maintain strong economic vitality, California communities need to provide adequate housing, opportunities for commerce and good services. But communities also need water, and because land development can degrade water resources, communities must also ensure that they grow in ways that do not jeopardize the very water that will be needed to accommodate growth.

Local government decisions – neighborhood and city-/county-wide planning strategies that specify how and where development occurs – affect future water supplies.

Water for our increasing population

The U.S. population is projected to grow by 18%, or 50 million people, between 2000 and 2020. California will absorb a large portion of that growth – adding some 12 million people by 2030. [3]

Where will this growth be located? Where will water come from for this growth? The answers to these questions are linked because the water we need for future growth depends upon how we develop the land to accommodate it.



...and the rate of car travel has increased even faster than the population growth.

Ninety-one percent of California's original five million acres of wetland have been drained or filled. It is estimated that the state is currently losing 5,000 acres of wetlands per year.

Today's growth patterns

■ How we are growing

Between 1982 and 1997, developed land in the U.S. grew by 34%, far outpacing the 15% population growth that occurred over the same period. [4] This pattern is the result of land use patterns that are spread out, resulting in what many refer to as "sprawl."

The root cause of sprawl is zoning and development that encourage large lots and the separation of land uses. Since the end of World War II, we have been separating housing, work places, retail, government services and even schools. The assumption that everyone wants to live in a large-lot, residential-only subdivision has led to near-complete dependence on the auto as a method of travel.

The result is that urbanizing communities are mostly covered in pavement, which effectively rules out walking and biking as transportation options. Wide roads and acres of parking lots make for unappealing, hot, polluted and unsafe places for pedestrians and bicyclists. Anyone not in a car is viewed as out-of-place. Furthermore, low densities make transit infeasible. It takes a density of at least seven units per acre to make frequent bus service viable and 16 units per acre to accommodate rail. In urban sprawl, densities are generally far below these minimums. [5]

Pollutants from automobiles are deposited on parking lots and roads. Stormwater collects those pollutants and deposits them in our streams, rivers, lakes, beaches and other bodies of water. Urban runoff is a chief cause of nonpoint source pollution that, according to the U.S. EPA, is the most significant threat to water quality.

In its 2000 National Water Quality Inventory, the U.S. EPA reported that the leading sources of impairments across all water body types – including streams and rivers, lakes, ponds and estuaries – are nonpoint sources such as agriculture and land-based activities in urban areas. [6]

■ Where we are growing

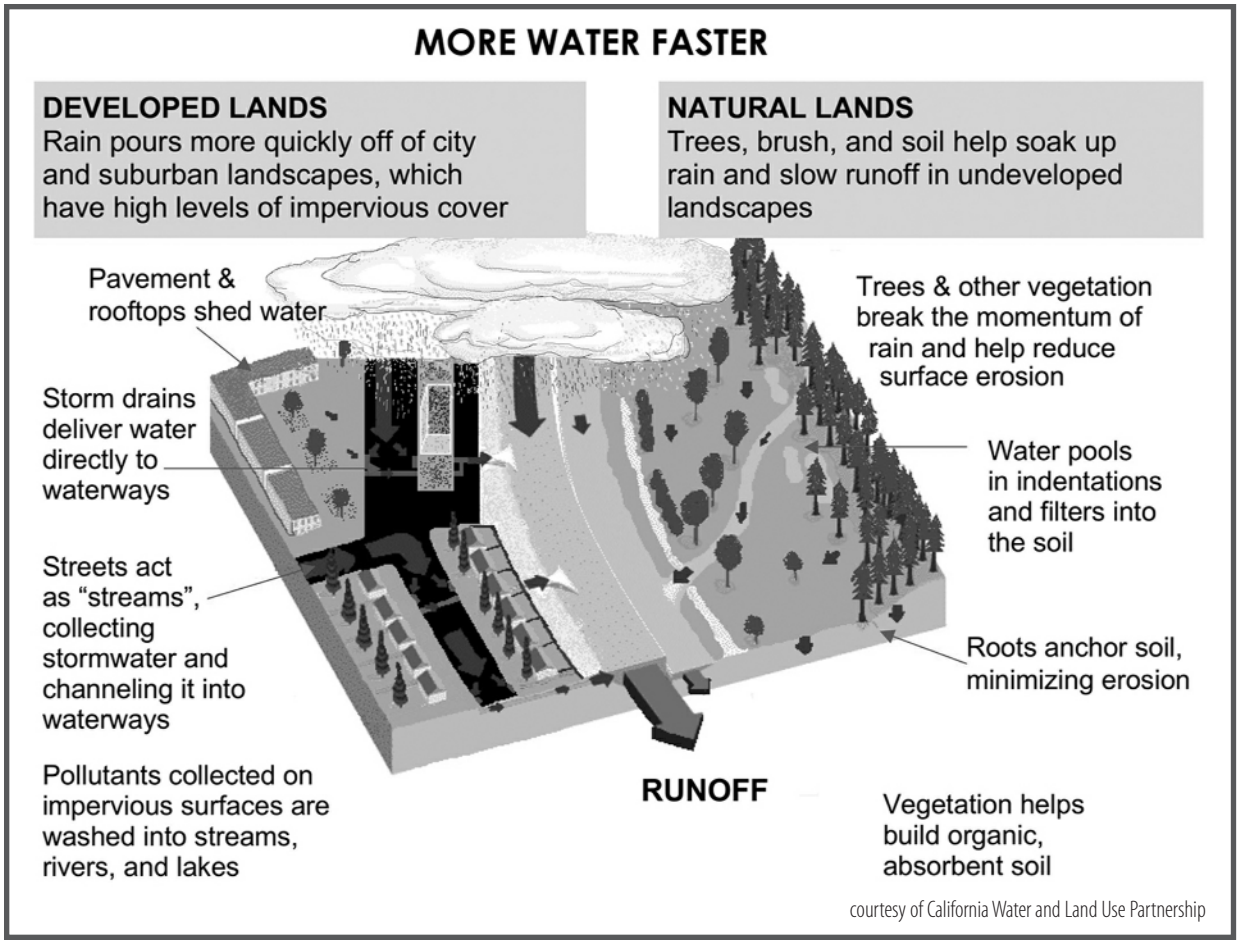
A related issue is that most new growth is occurring on undeveloped natural areas called "greenfield" sites. A recent analysis showed that 95% of all building permits in 22 metropolitan areas were for development on previously undisturbed lands. [7] Urban areas are expanding onto forests, wetlands, agriculture and rangeland, floodplains, riparian zones and other natural areas. These development patterns tend to consume valuable farm, range, recreational and forest land that drive important economic sectors.

The water supply impact of growing on greenfields

Today's growth patterns are troubling to water management professionals because they are reducing the amount of land that filters, transports and stores our water. Activities associated with increased development on greenfield sites such as construction, increased traffic and the use of chemical treatments in lawns, impair the quality of water resources as well.

As the diagram shows, developing land in undisturbed areas interferes with natural drainage processes and impairs water quality through:

- The loss of undeveloped natural areas that absorb runoff and filter pollutants;
- The expansion of impervious surfaces that prevent natural infiltration of runoff;
- The subsequent alterations to flow regimes that result in the loss of groundwater recharge, and increased localized flooding and nonpoint source pollutant loads carried by urban runoff.



It has long been understood that impervious surfaces affect water quantity by diverting groundwater flow to surface runoff, but the impacts to watersheds and water quality have become clear as well. Numerous studies show that by virtually every measure of ecosystem health, the streams, creeks, marshes and rivers in watersheds where over 10% of the land has been paved over are less diverse, stable and productive than those in natural watersheds. [8]

As the amount of impervious cover increases, the magnitude and velocity of runoff from urban areas increase resulting in erosion and instability of stream banks, changes to channel structure, loss of natural vegetation and increased sedimentation. These effects damage habitat and property, and often require expensive structural fixes to prevent damage to roads, bridges and property, which cause further degradation and compounded effects down stream.

Recent research indicates that in California, many rivers and streams appear to be even more susceptible to the effects of impervious cover than experts initially thought. These studies indicate that initial impairment actually occurs at levels as low as 3% to 5% impervious cover. [9]

Water management professionals have responded with stronger regulatory controls intended to reduce the impacts of development on water quality, water supplies and the natural environment.

Understanding water quality regulations in California

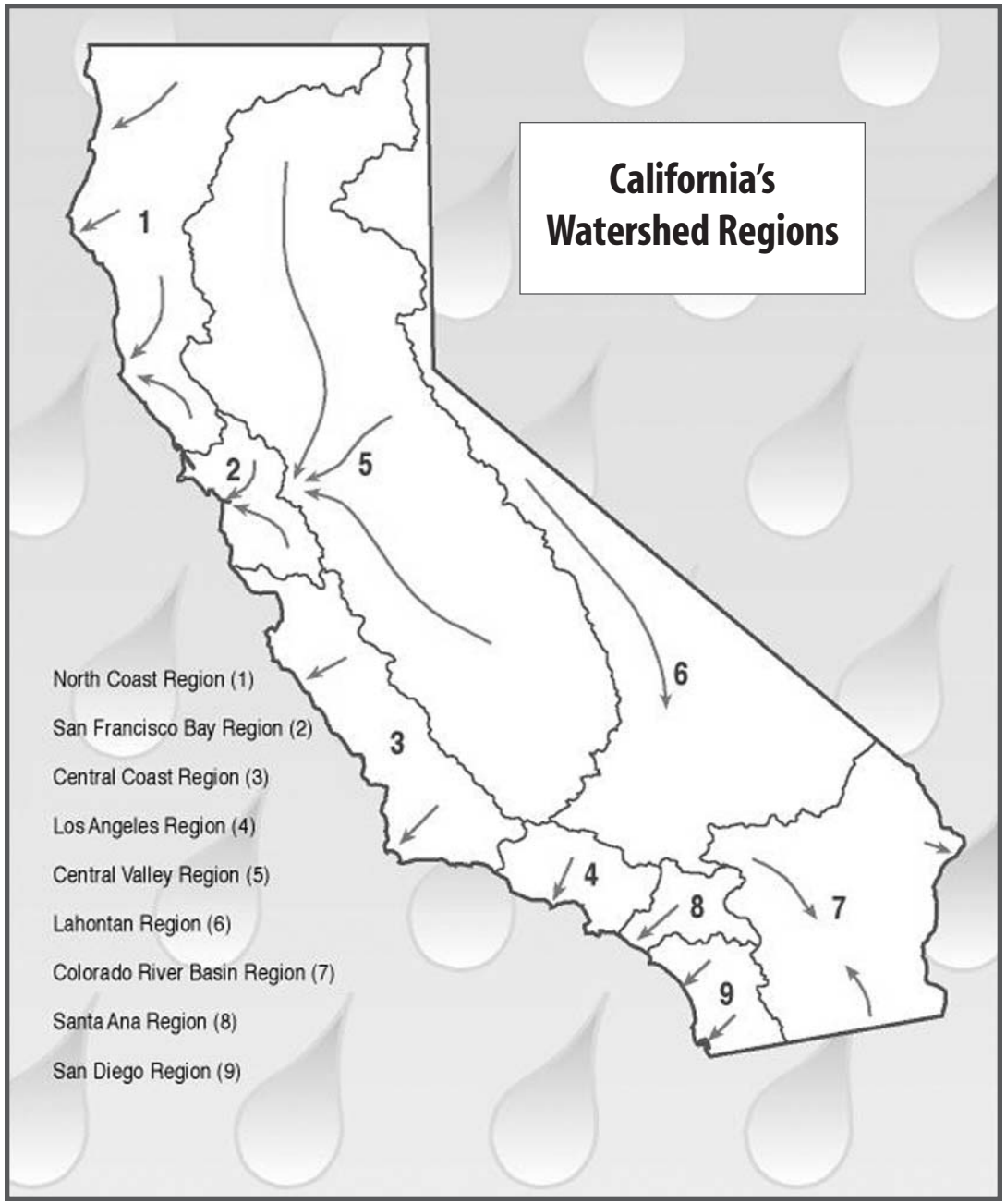
The Clean Water Act gives the U.S. EPA authority to set water quality standards for all contaminants in surface waters. The act makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions.

In California, the Porter-Cologne Water Quality Control Act gives the State Water Board ultimate authority over State water rights and water quality policy, and establishes the nine Regional Water Quality Control Boards to oversee water quality on a day-to-day basis at the local/regional level.

In 1972, the federal government established the National Pollutant Discharge Elimination System program (NPDES) to regulate point sources of pollution (attributable to specific outflows) from municipal sanitary sewers and industries. The program was effective but significant water quality problems, stemming from "nonpoint source" pollution, remained. Nonpoint source pollution results when contaminants from many diffuse sources are carried to water bodies.

In 1987, amendments to the Clean Water Act expanded the NPDES program to address nonpoint source pollution in urban runoff by determining that discharges from stormwater systems were point sources of pollution.

This change brought cities and counties, as operators of municipal separate storm sewer systems (MS4s), under the regulatory provisions of the NPDES Municipal Stormwater Program. Compliance with municipal stormwater permits



required by the NPDES can be costly and burdensome to local governments.

The NPDES MS4 permit program was instated in two phases. Phase I regulations were directed at MS4s serving a population of 100,000 or more, including interconnected systems and stormwater discharges associated with industrial operation and construction activities.

Phase II regulations were issued in 1999 to expand permit coverage to MS4 dischargers not covered in Phase I, including small MS4s (those serving a population of less than 100,000). In general, municipalities of over 10,000 residents require a permit, but the regional water boards have ultimate authority to designate who needs a permit. Smaller communities with exorbitant discharges may also be regulated.

NPDES permits are issued every five years to allow for changing conditions, evolving pollution control practices, and modifications to discharge/performance standards and regulations. The water-quality protection strategies in this guidebook apply to both phases.

Regulators want to see that the practices that communities select for their stormwater programs will lead to measurable water quality improvements, but they do not yet set specific numeric standards. Instead, they use performance standards that establish minimum levels of execution in each of six required program areas of the permit.

The standards are evolving, however, and becoming more stringent and explicit. Specific water quality requirements are not used yet, but water quality benchmarks are expected in upcoming permits, which suggests the shift toward numeric standards will continue.

NPDES permits require regulated MS4 operators to develop a Storm Water Management Program that implements appropriate best management practices to reduce the discharge of pollutants to the maximum extent practicable. Small MS4s permits prescribe a set of six minimum control measures that must be implemented along with evaluation and assessment efforts:

1. Public education and outreach
2. Public participation
3. Illicit discharge detection and elimination
4. Construction site runoff
5. Post-construction runoff control
6. Pollution prevention and good housekeeping

For more details on the NPDES program, please visit www.waterboards.ca.gov for links to more information and your regional water board's web site.

Water supply legislation

Legislation requiring adequate water supplies prior to development approval was passed in 2001. The so-called "show me the water laws" are Senate Bills 221 and 610. SB 221 requires a city or county to provide written verification of sufficient water supplies by the water agency for proposed development projects of 500 units or more.

A sufficient supply is defined as enough to meet the needs of the proposed development project in normal years as well as during a drought. Approval of the subdivision map or parcel map is prohibited unless and until such supplies are documented. Meeting the terms of this legislation is solely the responsibility of the city or county, even though it is the water agency that documents the availability of water for the new project.

Old stormwater solutions like these did not address water quality, but now they must.

SB 610 provides the process for implementing SB 221. This measure requires that a water supply assessment be included in the Environmental Impact Report of any large development project that exceeds certain specified thresholds.

Both the NPDES program and new water supply laws are pushing local governments to coordinate their planning and development processes with water management efforts.

Economic implications

The costs related to water issues, from managing stormwater to securing supplies, is great. To reduce serious impacts to their budgets, communities should address the basic land use practices that create those costs.

A study of 27 diverse watershed types revealed that in areas where less than 40% of the land in a watershed was developed, the treatment cost of water was about $30 per million gallons. Where the land was completely paved over or dedicated to intensive agriculture, the cost to supply drinking water to the community was $140 per million gallons. [10]

California's economy also depends on clean water and beaches – coastal employment represents more than 80% of employment in California, and 58% of the state's ocean economy is from tourism and recreation – watershed protection is not only a water quality issue, it is an economic imperative.

The solution is to grow in the form of compact, walkable communities that concentrate growth and preserve watersheds. Doing so may also increase property tax revenues. Investors expect that real estate values over the next 25 years will rise fastest in communities that have a "pedestrian-friendly configuration." [11]

"Local land use decisions have a significant impact on our water resources. We must work to develop our communities in ways that protect and enhance, rather than degrade, those natural and precious resources."

– Kathy Long, Ventura County Board of Supervisors

Ahwahnee Water Principle 1 – How we grow

Community design should be compact, mixed use, walkable and transit-oriented so that automobile-generated urban runoff pollutants are minimized and the open lands that absorb water are preserved to the maximum extent possible.

(see the Ahwahnee Principles for Resource-Efficient Communities)

"The biggest influence on future water supplies and water quality in California is local land use planning."

– Celeste Cantú, Executive Director, California State Water Resources Control Board

Planning that assures compact, walkable and transit-oriented communities while preserving important open lands is touted by both the U.S. EPA and the state as one of the most effective steps that can be taken to minimize the water pollution created by urban runoff and assure future water supplies.

In 2002, the U.S. EPA modeled the impacts of stormwater from new development at densities of one, four and eight residential units per acre. The results revealed that, assuming that our communities will continue to grow, it is better to concentrate the development in a smaller land area using higher densities.

"Lower-density development always requires more land than higher densities to accommodate the same amount of growth." When more land is disturbed, more of the watershed is damaged, according to the U.S. EPA's "Protecting Water Resources with Higher Density Development."

Figure 1 – One-acre scenarios

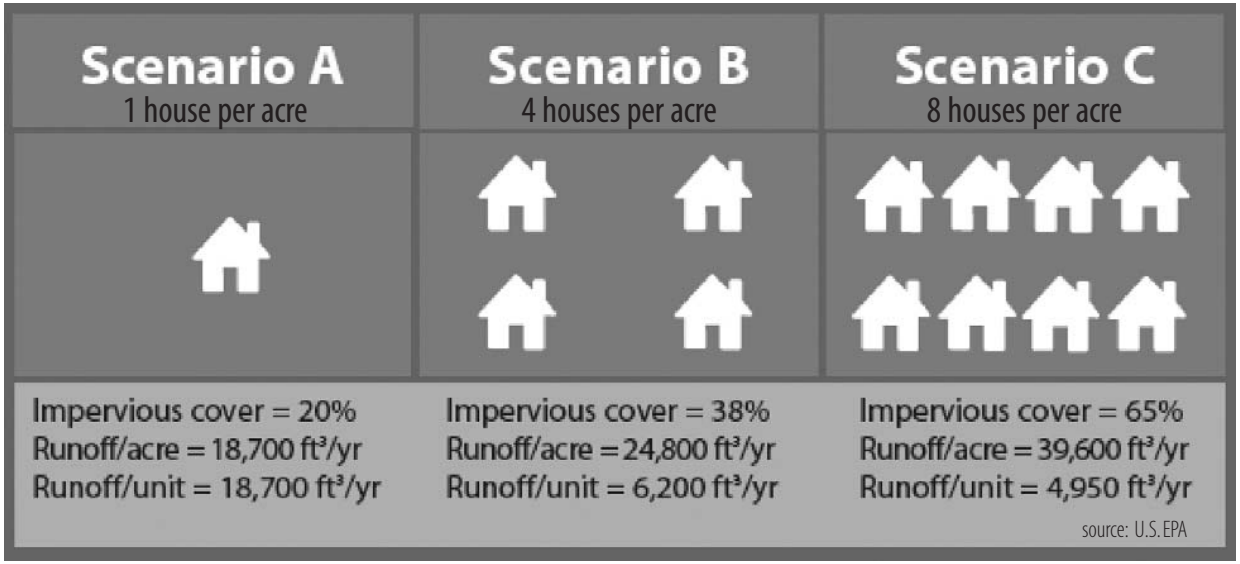


Figure 1 demonstrates that the amount of runoff – per housing unit – is higher at lower densities, and lessens as more units are accommodated per acre.

In Figure 2, overall impervious cover for the watershed decreases as site density increases. The lowest-density scenario (Scenario A) covers the entire watershed and generates 187 million cubic feet per year of stormwater runoff. At four houses per acre, Scenario B consumes less land and generates less than half as much stormwater runoff as Scenario A. At the highest density, Scenario C consumes the least land and produces just 49.5 million cubic feet per year of stormwater runoff. Scenario A generates approximately three times the runoff of Scenario B and four times as much as in Scenario C.

Purdue University researchers came to the same conclusion when they examined two potential project sites in the Chicago area – one in the city, the other on the urban fringe. Their study revealed that placing low-density development on the urban fringe would produce 10 times more runoff than a higher-density development in the urban core. These results are consistent with other studies completed in the past decade. [12]

Today, a significant number of developers are interested in developing and redeveloping vibrant downtowns that include townhouses, lofts and apartments in addition to retail, entertainment and government services. Others are attempting to develop New Urbanist, sustainable or smart-growth compact, mixed-use and mixed-income neighborhoods. The market is responding very positively to these walkable, bikeable and transit-friendly developments.

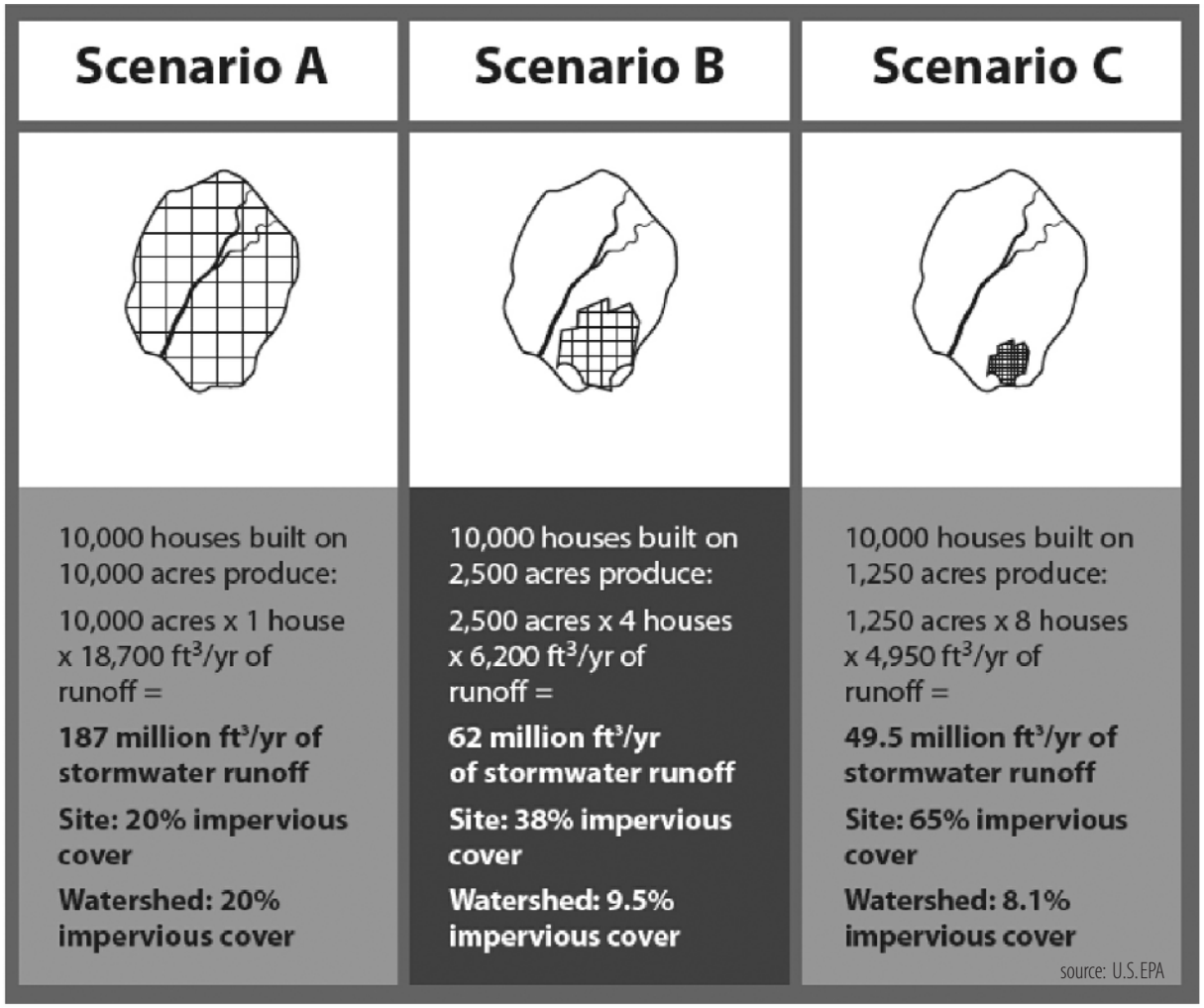


Figure 2 – A 10,000-acre watershed accommodating 10,000 houses

Redevelopment and infill development

Infill can reduce the impact of development on water resources by focusing growth into already developed areas instead of on more sensitive lands at the urban fringe. Infill also takes advantage of existing infrastructure and transportation options.

One of the best ways to protect natural areas and prevent the spread of impervious cover is to maximize the use of land that is already paved. Using land that is already developed conserves greenfields by absorbing growth that would otherwise be sited in undeveloped areas. This means growth is accommodated without increasing impervious cover and urban runoff.

These strategies can also lead to a greater mix of uses and higher densities, which create other benefits including increased transportation options and vibrant neighborhoods.

For example, if an old shopping center is replaced by mixed-use development, growth is accommodated with no net increase in impervious surface cover.

Many stormwater management strategies focus on new development. Redevelopment projects also provide opportunities to incorporate on-site stormwater strategies, such as swales, green roofs and permeable hardscapes that can readily be retrofitted into urban areas (see Section II). Cities can partner with the private sector to encourage redevelopment and identify ways to retrofit stormwater management practices into projects.

Strip mall transformed into pedestrian-oriented community

The Crossings is a transit-oriented redevelopment project in Mountain View that transformed a 1960s auto-oriented strip mall into a mixed-use and pedestrian-oriented community. Located adjacent to a new CalTrain commuter station, The Crossings provides a range of housing and retail opportunities (359 housing units at about 21 units per acre) located within a short walk of shopping and transit. An interconnected network of tree-lined streets and paths encourages pedestrian mobility and provides easy access to an existing grocery store.

The project's multi-story design reduces its footprint and provides sufficient density to support transit. The project also incorporates on-site stormwater management with permeable "turf-blocks" used for fire lanes and roof spouts that drain into landscaped areas to infiltrate rooftop runoff. Community parks and open spaces are distributed throughout the 18-acre site to provide an amenity as well as areas that can absorb stormwater.

For more information: Eric Anderson, City of Mountain View, (650) 903-6225 or eric.anderson@ci.mountainview.ca.us

To make use of infill and redevelopment as water protection strategies, communities may need to revise local zoning ordinances to allow for greater density and mixed uses. Both infill and redevelopment tend to be more complex and pose more barriers to developers than greenfield development. Communities should consider incentives that facilitate redevelopment and infill projects.

Density bonuses provide incentives for developers who agree to incorporate certain desired features into their projects. For example, a developer could be allowed to develop at higher densities if they integrate on-site stormwater practices. The City of Portland provides density bonuses for the use of green roofs.

The EPA's model Phase II stormwater permit provides language on the use of infill, redevelopment, and other specific smart growth strategies as stormwater best management practices (www.epa.gov/npdes/pubs/modpermit.pdf).

Walkable, well-connected streets and paths

Land use patterns that create a network of well-connected streets and paths that support walking, biking and transit have many water resource benefits. Reducing auto use minimizes auto-related pollutants in urban runoff.

Narrower streets translate into water resource benefits as well because they reduce the amount of pavement covering a community. The fifth Awhahnee Water Principle offers more information on the benefits of narrow street designs.

Need for improved zoning

Sadly, the vast array of codes and ordinances that we have produced over the past 50 years are holding up the progress of better land use patterns. Existing zoning codes and ordinances, focused on density and use, often make more water-friendly developments difficult or impossible to do.

Fortunately, tools and strategies are available to local governments to level the playing field or even provide advantages to those developers attempting to build less auto-oriented places to live, work and play.

Form-based codes

Form-based codes are increasingly being used by cities and counties across the country to achieve the walkable, aesthetically pleasing neighborhoods that residents and policy-makers have envisioned for their general plans. Rather than zoning by use and density, the form-based code allows the community to specify exactly what they want new development and redevelopment to look like – including public spaces and streetscapes. There is less emphasis on use and more on form – thus the name, "form-based" code.

This zoning tool involves community residents in design charettes very early in the process. It provides accurate graphics so that residents can see exactly what they are going to get. It also lets developers know exactly what the community wants. It speeds up the development approval process, gives certainty to developers, and saves them money.

A form-based code can be incorporated into a specific plan, a Planned United Development or other planning document. The Local Government Commission's web site (www.lgc.org) has more information on this tool and the communities that have implemented it.

Green stormwater design improves redevelopment

The City of Emeryville is combining extensive redevelopment and on-site stormwater best management practices for an integrated water protection strategy. Long a pioneer in reclaiming and redeveloping industrial areas, Emeryville is now incorporating stormwater management strategies to comply with NPDES permit requirements.

Strategies range from shared structured parking to green roofs and landscaped areas designed to capture stormwater. The City's "Guidelines for Green, Dense Redevelopment" provides developers and designers with a vision for integrating green stormwater treatment into site planning and building design.

The guidelines show how such techniques can be designed to match Emeryville's unique, densely urbanized development context. Using "green dense redevelopment," Emeryville's urban infill projects maximize existing impervious surfaces and direct growth away from the undeveloped portions of the watershed.

For more information: Peter Schultze-Allen, Emeryville Public Works Department, (510) 596-3728

"Resource-efficient land use means approving the kind of new commercial, industrial and housing developments that works with natural processes – not against them. Water resource-efficient land use means we understand how the watershed works and we work with it."

– Susan Lien Longville, Director, Water Resources Institute, CSU-San Bernardino

Transit-oriented developments add water management

■ City of Villages demonstrated in San Diego

The City of San Diego is encouraging smart growth development through its City of Villages pilot demonstration project, a strategy encourages development that mixes housing, retail, jobs, schools and civic uses within walkable communities that have easy access to transit.

The San Diego City Council approved five innovative projects to become pilot villages by a unanimous vote in February 2004. The projects are meant to inspire developers and communities to create similar neighborhood centers throughout the city.

Notably, the City of Villages plan coordinates infill and redevelopment with stormwater management; and the stormwater plan identifies the City of Villages infill plan as a water protection strategy.

For more information: San Diego Planning Department, (619) 235-5200 or planning@sandiego.gov

■ Rooftop runoff in San Jose

The Ryland Mews transit-oriented development in San Jose provides high-density housing on an existing light rail line within walking distance of downtown. Its multi-story buildings reduce the footprint of the development, while its setting facilitates pedestrian mobility to reduce transportation-related pollution and hardscape. The project also directs rooftop runoff to landscaping, allowing infiltration to control stormwater on-site.

For more information: Jenny Nusbaum, City of San Jose, (408) 277-4576 or jenny.nusbaum@sanjoseca.gov

Ahwahnee Water Principle 2 – Where we grow

Natural resources such as wetlands, floodplains, recharge zones, riparian areas, open space and native habitats should be identified, preserved and restored as valued assets for flood protection, water quality improvement, groundwater recharge, habitat and overall long-term water resource sustainability.

"The water in a watershed is essential for supporting all life."

– Mary Nichols, Director, UCLA Institute of the Environment

Natural resources, such as our drinking water supplies, riparian habitat and aquatic ecosystems, are linked together and function as an integrated whole in a watershed. The water within watersheds – above and below ground – is connected. This means the quality of both surface and groundwater supplies is dependent upon the land cover within a watershed.

Watersheds act as the plumbing system that ultimately delivers rainwater from the place it lands in the watershed to our kitchen sinks. "Undisturbed" areas are important to this natural plumbing system because they filter, transport and store our water; provide natural flood control; and maintain fisheries, timber, agriculture and other natural resources.

Preserving the watershed

The U.S. EPA has been advocating the use of watershed protection approaches since 1991. Watershed protection, which emphasizes preservation of valuable natural areas to protect water resources, is an approach that is recognized for providing long-term benefits to water quality and supplies.

Local government can align development with long-term water resource goals by making wise land use decisions that protect watershed functions rather than degrade them. The second Ahwahnee Water Principle is designed to:

- Protect and restore large, continuous natural areas as open space;
- Preserve important and sensitive ecological areas such as wetlands, floodplains and riparian corridors;
- Preserve and enhance the value of these natural areas as community assets.

Preserving open space and farm land in the watershed

■ Livermore Specific Plan curbs sprawl

The City of Livermore's South Livermore Valley Specific Plan received the 2006 Outstanding Planning Award for Implementation from the American Planning Association. For each acre of land developed in the plan area, one acre of agricultural land is placed into a conservation easement. This helps curb sprawl while preventing the loss of prime agricultural land. For more information: Livermore Community Development Office, (925) 960-4400

■ Conservation easements create balance

In Placer County, one of California's fastest-growing areas, the Placer Land Trust is using collaboration and conservation easements to balance rapid growth and land conservation.

The trust crafted the West Placer Habitat Protection Program with developers, conservation groups, and local, state and federal agencies, to protect 3,500 acres of critical habitat in western Placer County over 25 years. Real-estate transaction fees in the West Roseville Specific Plan area fund the program. To date, 2,000 acres of valuable land have been protected. For more information: (530) 887-9222 or info@placerlandtrust.org

Efforts to preserve valuable natural areas work best when coordinated with the strategies outlined in the first Awhahnee Water Principle that create compact forms of development, encourage a mix of uses and maximize the utility of existing infrastructure. The combination of compact community forms and preservation of critical environmental areas is a powerful tool that communities can leverage to protect the water resources needed to sustain future growth.

Identify and prioritize

Many tools are available to local officials ready to initiate, or improve upon, efforts to protect and restore natural areas. Not all land is of equal value for water resources and watershed protection. Taking inventory of areas that remain undeveloped and assessing their value allows communities to prioritize and protect those areas that are the most valuable and vulnerable.

To get started, communities must:

- ➢ Identify – Determine areas that are still undeveloped.
- ➢ Prioritize – Rank areas according to their natural resource value.
- ➢ Protect – Use local and regional planning, incentive and acquisition programs, and land use regulations to protect valuable areas and direct future growth.

Geographic Information Systems (GIS) mapping can help communities with these steps. Mapping existing land uses, open space areas and key natural resources can help communities know what they have to work with, and how these areas relate to each other spatially. Mapping can also help communities rank sites in terms of their conservation priority, and target areas most suitable for growth. Communities can use this information to create and compare different development scenarios as well. These methods can combine good data and expert analysis with public participation.

Once identified, the community(s) involved must determine ways to protect and restore those areas that are the most important, and then implement them through local and regional planning policies and plans. Ways to do this include conservation easements, transfers of development rights, buffer zones and greenbelts, urban growth boundaries, open space districts and habitat conservation districts.

Conservation easements

A conservation easement is a legal agreement that permanently limits uses of a piece of land to protect its conservation value. Local land trusts work with landowners to create conservation easements as an alternative to subdividing or selling the land for development. The easement spells out the rights retained by the landowner and the restrictions on use of the property.

In return for putting their land under easement, landowners typically receive monetary compensation, can stay on their land, and can receive significant tax benefits. To be eligible for federal tax deductions, conservation easements must be dedicated in perpetuity so that the easement remains in force forever and "runs with the land," meaning that all subsequent landowners are also bound by the easement.

Easements on private lands have become an effective means of protecting large expanses of natural and working landscape without having to purchase the land outright or needing to manage it over the long term. Cities and counties can partner with local land trusts as funding partners and integrate easements into local planning efforts.

Transfer of development rights

In a Transfer of Development Rights program, landowners living on valuable land worthy of protection are able to trade their rights to develop that land for the right to develop in designated growth areas.

This allows a community to shift development away from land it wants to protect but cannot afford to purchase. At the same time, development is focused in designated growth areas. The result benefits both the landowner, who receives just compensation, and the community, which can protect important natural areas, agricultural lands or open space.

Development rights credits help to direct good growth

The County of San Luis Obispo passed an ordinance to allow the Land Conservancy of San Luis Obispo County to sell development credits in areas that the County has designated for growth.

A $200,000 State Coastal Conservancy grant was used to establish a revolving fund for purchasing environmentally sensitive properties, record deed restrictions on those properties, and sell the resulting Transfer of Development Rights credits to people wishing to develop at higher densities or add square footage above allowed levels within designated "receiving" areas.

The proceeds from these sales provide capital for the acquisition of additional property from willing sellers to be preserved as open space. The program costs the county nothing since the sale of credits is administered by the State Coastal Conservancy. The Land Conservancy of San Luis Obispo County has preserved more than 230 properties to date and doubled the amount of money in the revolving fund.

For more information: Land Conservancy of San Luis Obispo County, (805) 544-9096 or lc@special-places.org

Buffer zones and greenbelts

Buffer zones create a transition or barrier of open space between potentially conflicting land uses. Placing buffers between development and sensitive natural resource areas is a key water-protection strategy. These water-specific buffers are commonly used along rivers and streams, around wetlands or lakes, or to protect known groundwater recharge zones. They provide flood protection, reduce erosion, protect water quality, and create/protect habitat. Studies have shown that forested buffers are highly effective in removing particulate pollutants from runoff. [13]

Communities can establish setback requirements that create buffers by specifying how far a development must be built from a stream, wetland or other water body. The U.S. EPA recommends a minimum of 100 feet to protect water quality and at least 300 feet if a habitat corridor is also needed.

Regional greenbelts protect some of world's best farmland

The cities of Yolo and Solano Counties are working together to protect some of the world's most productive farmland by creating a regional greenbelt to distinguish each city, focus development into built areas, and preserve natural and working lands.

For example, the City of Davis' Farmland Preservation Ordinance is helping to create a greenbelt around the city. It requires mitigation for development that alters zoning from agricultural to any other use. The mitigation can come in the form of conservation easements or other land-protection practices, or developers can pay into a farmland preservation fund established by the City.

The City of Davis' Right to Farm Ordinance is another tool for developing greenbelts. It requires that developers create a buffer of at least 150 feet between existing agricultural land and new development. A portion of the buffer can be used for native landscaping, trails, stormwater drainage swales or retention basins, and other natural or recreational amenities. For more information: (530) 757-5610 or pbweb@ci.davis.ca.us

In Solano County, the Cities of Dixon and Vacaville are working hand-in-hand to create an agricultural greenbelt to separate the two cities and protect the cultural, natural and economic values of the land between them. They jointly purchased the land that now creates a greenbelt between the two cities. It is leased to local farmers and is under an easement that ensures the land will never be developed. (www.ci.dixon.ca.us)

And in 2002, the Cities of Davis and Woodland, in conjunction with Yolo County, signed a memorandum of understanding establishing a greenbelt between the cities. The MOU makes official the intent of all three jurisdictions to provide a permanent area of open space and agriculture between Davis and Woodland. (pbweb@ci.davis.ca.us)

Urban growth boundaries

Urban growth boundaries confine growth to a designated zone by creating a boundary around a municipality or developed area outside of which urban development is prohibited. These boundaries are not meant to stop or restrict the amount of growth, but to contain outward urban expansion.

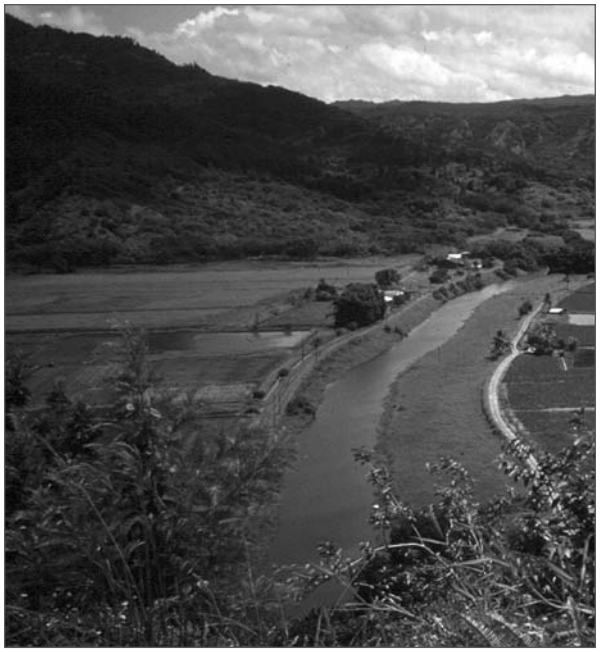
Typically, the area inside the boundary – the growth zone – provides enough land and infill/redevelopment potential to accommodate projected growth over a 20-year period. Zoning ordinances usually need to be changed to allow and encourage higher densities inside the boundary.

A similar approach is to limit the extension of infrastructure, thereby forcing development to occur in areas that are already served by existing public services and facilities. These controls are meant to limit "leapfrog" development patterns.

More and more localities are employing urban growth boundaries to protect open space and encourage development in already developed areas. These programs can be highly effective in ensuring that growth does not occur in natural areas, but they must be coordinated with regional efforts to ensure that growth is accommodated in a fair manner, and that uncontrolled forms of development do not simply end up in nearby communities.

Urban boundaries "curb" growth so open space can "soar"

Ventura County and eight of the county's municipal jurisdictions have passed Save Open-Space and Agricultural Resources (SOAR) ordinances that share the goal of preventing development outside of designated areas. For the cities, the ordinances establish a boundary called a "City Urban Restriction Boundary" (CURB). Development outside a city's CURB lines requires city voter approval. At the county level, a countywide vote is required to approve any change to existing open space, agricultural or rural designations or to change any element of the general plan related to those designations. Most of the SOAR ordinances were passed by initiative. For a copy of Ventura County's ordinance: www.ventura.org/planning/ordinances_regs/ords_regs.htm



Open space districts

Open space districts are independent special districts within local governments with the role of protecting and acquiring open space in and around the community. They are often established by local ballot measures through which local voters decide to tax themselves for the purpose of protecting open space.

Since 1994, voters around the nation have approved more than 1,200 local conservation measures generating more than $30 billion in new public funds for land conservation. In 2005, 80% of such measures passed, as voters approved another $1.7 billion for open space protection. Cities and counties can take the lead in establishing or increasing funds for local open space districts.

Voters support preservation measures, fund land acquisition

■ Marin County creates open space district to protect wetlands and natural habitats

In 1972, Marin County voters approved the creation of the Marin County Open Space District. Since then, the district has worked to protect more than 14,000 acres in 33 preserves, including native habitats, important natural resource areas and sensitive wetlands.

The district has worked with local partners to purchase land, obtain conservation easements, and establish transfer of development rights programs. The protected acreage – ranging from wetlands to oak woodlands and redwood groves – provides a host of public benefits including recreation, water resource protection and habitat protection.

For more information: parksandopenspace@co.marin.ca.us

■ Sonoma County voters approve sales tax to fund conservation efforts

Sonoma County voters created the Sonoma County Agricultural Preservation and Open Space District in November 1990 and funded it with a quarter-cent sales tax. The tax currently generates more than $17 million annually.

The district works with local government, landowners and public agencies to acquire land for each of four program areas: agriculture, greenbelts, natural resources and recreation. Employing several methods of land acquisition, this program is using public-private partnerships to protect valuable natural resources, working lands and community amenities.

The program has protected nearly 70,000 acres of land by conservation easement or fee title purchase, at a cost of $168.7 million for land worth $221.6 million – a net savings to the district of nearly $53 million.

For more information: Sonoma County Open Space District, (707) 565-7360 or openspace@sonoma-county.org

Conservation plans – local opportunities for regional planning

Habitat Conservation Plans (HCP) and Natural Community Conservation Plans (NCCP) are locally developed plans that are completed to satisfy federal and state species protection laws. The plans are developed under California's Natural Community Conservation Planning Program Act and the federal Endangered Species Act for the protection of species and habitat. The California Department of Fish and Game administers the NCCP program.

The program is not focused on single species, instead the goal is to conserve natural communities at the ecosystem scale while accommodating compatible land uses. This helps reduce conflict between conservation efforts and reasonable uses of natural resources. The U.S. Fish and Wildlife Service administers the HCP program that works hand-in-hand with the state program resulting in joint NCCP/HCPs.

The state program is generally more expansive than the federal equivalent because it focuses on protecting whole ecosystems rather than single species. All NCCPs are completed in concert with HCPs, which are funded under the Endangered Species Act. An adequate NCCP/HCP will likely receive implementation funding from state and federal sources.

NCCP/HCP plans allow local governments to coordinate their natural resource planning at a regional level and to determine how and where growth should occur over a longer timeframe. Developers benefit through streamlined permitting processes that clarify allowable types and locations of development in the plan area.

Regional planning balances growth and habitat conservation

■ Yolo County's regional agency secures largest HCP planning grant in California

In 2004, Yolo County and the Cities of Davis, Winters, Woodland and West Sacramento entered into a collaborative planning agreement with the California Department of Fish and Game to develop a countywide NCCP/HCP. A joint powers agency was established to act as the lead agency on the project.

The conservation planning process coincides perfectly with other local/regional planning efforts including Yolo County's General Plan update and Integrated Regional Water Management Plan, according to Maria Wong, the agency's executive director. She believes that this provides an opportunity to develop plans with mutually supportive goals and solutions that can help Yolo County communities to balance conservation with working landscapes and regional growth before remaining habitat is lost or degraded.

The project is supported by grant funding from state and federal sources. Last year, it received the largest HCP planning grant awarded in California. For more information: Maria Wong, (530) 666-8834.

■ San Diego County's regional plan provides large-scale ecosystem and habitat protection

In 1997, San Diego County adopted a Multiple Species Conservation Program to provide large-scale ecosystem and habitat protection, as opposed to individual species preservation. The regional plan covers 900 square miles that designates areas suitable for development and those that must be preserved. Large areas of continuous habitat and natural lands are protected under the plan, which has assisted landowners and developers with a simpler, more streamlined development process. Under the program, developers and local agencies benefit from the localized permit process, pre-established mitigation requirements based on development area, and cost sharing with state and federal agencies.

The program is a 50-year plan that was developed by species advocates, developers and local/state agencies. Though the plan does not place a moratorium on development, it requires County review of all projects within the plan area to determine compliance with mitigation and regulations of the program. The County also negotiates with property owners in the plan area to acquire more land for preservation.

Since its inception, thousands of acres have been acquired for protection. The program's goal is to acquire or permanently protect a total of 172,000 acres, 98,379 of which are in unincorporated areas. For more information: www.sandiego.gov/planning/mscp or Betsy Miller, City of San Diego Planning Department's MSCP Section, (619) 533-4543 or bmiller@sandiego.gov.

West's largest restoration

The Vic Fazio Wildlife Area, dedicated in 1997, created a wetland preserve of more than 16,000 acres – the largest public/private restoration project west of the Florida Everglades. The area provides protection from seasonal floods, the most significant natural hazard in Yolo County. The wetlands also provide natural habitat and agricultural use during the summer and fall.

The Vic Fazio Wildlife Area is considered a model of public-private partnership that illustrates the potential for communities to meet shared goals through regional collaboration. The project's stakeholders included landowners, conservation organizations, recreation groups, farmers and representatives of local, state and federal resource and planning agencies.

The plans reduce risk and conflict because all parties know what to expect and what is required. The plans must specify a strategy for achieving the required objectives of natural community conservation and compatible land use and economic activity. The strategy might include such techniques as land acquisition, developing wildlife reserves or watershed management.

For more information: California Department of Fish and Game, www.dfg.ca.gov/nccp; and "A Local Official's Guide to Habitat Conservation Laws," www.ilsg.org/habitat

Restoration strategies

Restoration is to natural resource management what redevelopment is to community planning; it takes damaged "natural" infrastructure and turns it into a community asset.

Restoration practices re-establish the "working parts" of a site's ecology, so it can function properly again. Restored areas such as wetlands, floodplains and riparian areas can provide water storage, purification and infiltration to reduce flood risks, improve water quality and enhance supplies.

Local watershed councils and resource conservation districts are often engaged in restoration work and can be valuable partners for local government. Resource conservation districts also provide important links to local landowners, which is especially valuable since agricultural and pasture lands often contain sites that can be restored and maintained to serve double-duty as working lands and water protection areas. (Section IV provides more information on entities with whom local government can partner.)

Wetland restoration is especially important. Wetlands are the workhorses of our watersheds. They filter water, detain flood flows, recharge aquifers, feed surface waters, provide prime habitat and aesthetic and recreational value for people.

The Arcata Marsh and Wildlife Refuge (above) takes partially treated wastewater and finishes the process.

In recent decades, urbanization and development of roadways have caused the loss of significant amounts of wetland areas. Ninety-one percent of the five million acres that once made up California's wetlands have been drained or filled. It is estimated that California is currently losing 5,000 acres of wetlands per year. [14]

This creates a serious shortage of land areas that can recharge groundwater, absorb excess flood flows, filter pollutants and deliver the array of ecosystem services – including purifying water supplies – that wetlands provide.

One way to recoup the essential work that wetlands perform is to restore or create wetland areas in and around a community. This practice has been used successfully for flood protection, stormwater control, wastewater treatment and habitat creation.

Man-made wetlands remove pollutants from urban runoff

The San Diego Creek Watershed Natural Treatment System (NTS), developed by the Irvine Ranch Water District, is a watershed-based approach to solving regional water quality problems. It strategically places man-made wetlands throughout the watershed to remove pollutants from urban runoff – particularly from chemical lawn treatments that wash off people's yards.

The project is expected to remove 126,000 pounds of nitrogen and 21,000 pounds of phosphorus annually, and reduce fecal coliform levels by 26%. It also provides wildlife habitat and open space, and is expected to cost significantly less than new or existing wastewater and stormwater infrastructure systems.

Project Manager Norris Brandt says the project is cost-effective, and notes that it has been well received because "it uses existing public lands and natural processes to clean the creek water instead of expensive man-made structures like treatment plants."

The natural treatment system will use plants and soils including bulrush, cattails and peat to eliminate pollutants in urban runoff. Sediments, nutrients and pathogens

that would otherwise enter Upper Newport Bay – and eventually flow into the ocean – are instead settled out and assimilated though natural processes.

While its primary goal is to improve water quality, other benefits include creating habitat and providing an aesthetic and educational amenity. The natural treatment system is a model for the way wetland restoration can solve multiple problems, create community assets, and cut costs.

For more information on this and other Irvine Ranch Water District Urban Runoff projects: www.irwd.com

II. Water-Friendly Site Design

"Fines for violating new EPA runoff regulations are costly; traditional treatment methods are expensive. But there is another approach."

– Art Baggett, Boardmember, State Water Resources Control Board

Natural systems have the ability to filter and cleanse water, then collect it in lakes, rivers and underground aquifers. For the sake of our water supplies, it is best to leave much of a watershed undeveloped. Practically speaking, however, we will be developing an increasing acreage of watershed lands to accommodate our growing population.

A community's water resources are only as healthy as the areas through which they flow. By retaining or restoring natural drainage and landscape systems within development, we create a natural infrastructure that filters, stores and distributes water resources, ensuring their quality and quantity for our use. We can also create systems that naturally manage stormwater generated by development.

Much of our urban areas are now covered with hard surfaces, mostly streets and parking lots. Dangerous pollutants accumulate on these surfaces including heavy metals from auto parts and oil leaking from cars, only to be washed into local waters by stormwater and runoff from irrigation systems.

Impervious surfaces also prevent water from soaking in the ground to recharge aquifers, and this leads to flooding since the water has nowhere else to go. During the 20th century, stormwater management in developed areas was highly engineered and lead to extensive paving and impervious surfaces. Today, underground pipes and aboveground concrete channels collect the polluted runoff and deliver it into surface waters. The unfortunate result is decreased water quality, diminished groundwater supplies and flooding.

Ahwahnee Water Principles 3, 4 and 5 are design strategies that reduce development impacts by minimizing impervious surface cover and integrating natural runoff controls in a project's site design. Together, the strategies aim to emulate predevelopment conditions in the built environment. They call for areas to be incorporated into the urban environment that will temporarily hold water during periods of heavy rain. They call for landscapes designed to reduce water demand. And they call for a reduction in hard surfaces in the urban environment, with the substitution of pervious pavement and other surfaces that allow water to penetrate the soil and flow to groundwater systems.

Low impact development

Water resource professionals refer to the use of these ecologically based design techniques as "Low Impact Development." Low impact development promotes the integration of stormwater best management practices that mimic natural hydrology into all aspects of development and community design, including streets and parking, homes and buildings, and parks, public spaces and landscaped areas.

The State Water Board and nine regional water boards are encouraging the use of low impact development by incorporating it into post-construction performance criteria for municipal stormwater permits.

A primary goal of low impact development is to reduce runoff volume by infiltrating rainfall into the ground where it can be taken up by plant roots or enter groundwater systems. Another key goal is to treat runoff by allowing pollutants to be filtered or settle out as the runoff is conveyed through and stored in vegetation and soils.

Low impact development is economical, costing less than conventional stormwater management systems to install and maintain, in part, because of fewer pipe and below-ground infrastructure requirements.

The landscape areas used in low impact development also create "quality of life" benefits that contribute to livability, property values, community vitality and aesthetics. Low impact development has also emerged as a cost-effective tool for helping communities comply with post-construction elements of their National Pollutant Discharge Elimination System (NPDES) permit requirements.

The enforcement of the federal requirements has been somewhat lax during the early years of its implementation, according to Celeste Cantú, the State Water Board's executive director.

However, she warns, "The regulations are going to keep getting tougher. It's going to be expensive to NOT get it right." Cantú is a strong advocate for implementing the Ahwahnee Principles in new development as a mechanism for assuring water quality.

"The days of catch it, pipe it, and send it are gone. We now have effective planning and design solutions that allow us to manage stormwater as a valuable resource. We have the tools to design urban development in a way that respects the hydrologic cycle."

– Jeff Loux, Director, UC Davis' Extension Land Use and Natural Resources Program

Ahwahnee Water Principle 3 – Maximize permeability in developed areas

Water holding areas such as creek beds, recessed athletic fields, ponds, cisterns and other features that serve to recharge groundwater, reduce runoff, improve water quality and decrease flooding should be incorporated into the urban landscape.

We can improve the land's capacity to handle the water it receives when it rains. The measures described in the third Ahwahnee Principle mimic naturally occurring systems that hold and drain water in a safer manner.

They can take many forms such as swales, rain gardens and depressed turf areas, and can be used in parking areas, along road sides, in traffic islands, below roof gutter downspouts, and in public areas, parks, greenbelts and residential landscaping.

Site design and natural drainage

Infiltration is the natural drainage process through which water is absorbed into the ground. It allows physical, chemical and biological processes to occur that purify water as it travels through soils into groundwater basins.

Retention is another important component of the natural drainage process. Here, runoff is temporarily held in place allowing for evaporation, infiltration into the ground and slower, controlled rates of drainage to take place.

These processes can effectively attenuate flood flows and replenish our rivers, lakes and groundwater. They can also be designed into stormwater best management practices to control drainage and capture pollutants suspended in runoff.

Bioretention is a common low impact development practice that directs runoff from impervious areas into a highly permeable area to treat and control on-site runoff close to its source. Bioretention practices not only provide water storage and facilitate infiltration, they also improve water quality. A study of six bioretention systems showed greater than 99% removal efficiency for oil and grease. Removal of total suspended solids – a measure of the amount of pollutants in an amount of water – ranged from 72% to 99%. Lead removal ranged from 80% to 100%. [15]

A number of communities are now creating recessed parks, baseball fields and similar features that temporarily hold water during excessively rainy periods. Some are also daylighting urban creeks and creating or restoring ponds.

Vegetated swales and rain gardens

Swales are drainage areas that are designed and maintained to slowly transport runoff through a vegetation-lined channel. The vegetation helps to slow the flow of the runoff and promotes the filtration and settling of pollutants. Biophysical interactions between the vegetation, soils and soil organisms serve to digest most contaminants.

Rain gardens are another example of bioretention practices. These low-tech treatment systems look like nicely landscaped

areas, but are in fact engineered systems to manage stormwater runoff. They can be designed to fit a range of needs and areas, and are often combined with other low impact development practices to create a stormwater treatment system.

Capturing the rain to protect water

Rain barrels and cisterns are low-cost, effective and easily maintainable water storage systems that can be used at residential, commercial and industrial sites to manage rooftop runoff. They are designed to capture runoff that comes off buildings, which reduces stormwater runoff and provides a source of water for landscapes or other uses. "Rainwater harvesting" practices help manage stormwater, turning it from nuisance into a resource.

For example, University of California-Davis' Department of Environmental Horticulture and the Center for Urban Forest Research have integrated a rainwater harvesting system that uses cisterns and rain barrels to capture water, a vegetated filter strip to treat surface runoff, a swale that enhances infiltration into soils, and drought-tolerant landscaping that strategically uses trees to shade smaller vegetation. The water stored in the rain harvesting system is used for landscape irrigation. (www.fs.fed.us/psw/programs/cufr)

Portland's "Green Streets" link transportation planning and stormwater management, reduce impervious hardscape

Portland's "Green Streets" links the city's transportation planning and stormwater management into a program that actively reduces runoff and removes pollutants, using strategically placed best management practices throughout the city's transportation network.

Sidewalks, streets, medians and parking areas are all designed to maximize infiltration and reduce overall imperviousness. For more information: www.portlandonline.com/bes/index.cfm?c=34601

Stormwater management: Working with developers

■ Best practices and swale guidelines assist compliance with regulations, reduce runoff

The City of Livermore relies on the legal authority of its stormwater ordinance to implement its stormwater program and ensure that new development is compliant with NPDES permit requirements. The ordinance cross-references the permit, instructing developers to follow its provisions. Keys to the program include early communication with developers, extensive review of project planning, design and installation, and rigorous monitoring and enforcement.

Developers have flexibility to select best management practices consistent with those outlined in the City's stormwater permit. However, City staff also provide guidance to ensure that developers have adequate information to properly design, install and maintain their best management practices. The City's "Swale Guidelines" help developers in this process. Today, swales are a common feature in development throughout Livermore.

For more information: Livermore Public Works Department, (925) 960-8000

■ City worksheet helps developers comply with stormwater quality requirements

The City of Emeryville has generated a simple but effective worksheet to help builders and developers comply with local stormwater quality requirements. It explains the importance of controlling stormwater quality, summarizes requirements, and offers best management practices for construction site controls, site design for water quality and stormwater treatment measures.

The worksheet provides developers with a guideline for completing the required form detailing the stormwater treatment measures on their development site. It also encourages developers to include stormwater treatment measures in their plans early in the design process.

For more information: Peter Schultze-Allen, Environmental Analyst, Emeryville Public Works Department, (510) 596-3728

Economic implications

Natural drainage systems are economical, costing far less than conventional stormwater management systems to install, in part because they require fewer pipes and other below ground infrastructure, and because they often reduce the need for off-site detention basins. The landscaped areas that are created also provide aesthetic benefits and increase property values.

A 2003 study modeled the economic benefits of on-site runoff storage and revealed that this design option could save $17,540 to $36,000 per acre, due to reduced flood liability on property value. Avoided costs for storm drainage infrastructure were estimated at $247 to $836 per acre. [16]

A recent analysis of flood control costs in Los Angeles County estimated that $400 million in flood insurance costs could be avoided by installing a comprehensive natural drainage system that retains water and promotes infiltration. [17]

Other research indicates that developers are not as opposed to these solutions as people assume. As long as the rules are clear and the project can be completed without excessive delays, developers are open to using the practices, particularly as the cost savings and environmental-permitting benefits from low impact development practices become clear.

Coordinating local development codes and stormwater management creates a more streamlined process and ensures that effective, lasting stormwater controls are implemented.

Daylighting urban streams

The rivers and streams that flow through our communities are among our most highly valued resources. They add community character, recreational opportunities, economic stimulus, habitat and environmental and water resource benefits.

Unfortunately, since the early parts of the 20th century, many of the rivers and streams in our communities have been buried in culverts under pavement or encased in concrete channels. These degraded waterways provide little benefit for human or natural communities and serve to quickly funnel polluted water to healthy rivers and streams they flow into.

Restoring urban creeks is important to watershed-based stormwater management. A recent study reports that streams do much of the heavy lifting when it comes to filtering pollutants from urban runoff. Some streams process more than 50% of the inorganic nitrogen – common in household lawn treatments – entering the stream system. [18]

Public partnerships bring a Sonoma urban creek back to life

Santa Rosa Creek is a model of urban creek restoration. A diverse group of stakeholders worked together to restore the creek after it had been channelized and lined with concrete for flood-control purposes in the 1960s. The stream had become an urban eyesore and a haven for vandalism and transients. The Committee for Restoring Santa Rosa Creek involved partners in the development of the Santa Rosa Creek Master Plan, which was adopted by the City of Sonoma, the County of Sonoma and the Sonoma County Water Agency. Today, the creek has been restored as part of a community greenway. Through a participatory process, the creek was brought back to life and now provides a range of benefits to the community including restored steelhead habitat. For more information: Nancy Adams, transportation planner, Santa Rosa Department of Public Works, (707) 543-3910

Natural drainage can save money, boosts home values

Village Homes, a 60-acre development built in the late 1970s in Davis, provides a real-life example of the infrastructure savings of a natural drainage system. Runoff water is held and absorbed on-site through a system of natural-looking creeks and holding ponds that run throughout the development. The developer saved $700 per unit (in 1978 dollars) over the cost of installing a concrete storm drain.

Property values in the area are also the highest per square foot of any in Davis, although the initial selling prices of the homes were not above average. This is due, in part, to the aesthetics of the landscape design. [19]

Ahwahnee Water Principle 4 – Water-wise landscaping

All aspects of landscaping from the selection of plants to soil preparation and the installation of irrigation systems should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater.

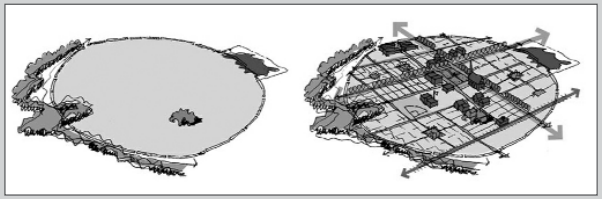
The fourth Awhahnee Water Principle addresses how we employ landscape design in our communities to improve stormwater management and maximize existing supplies, from the scale of an entire subdivision down to an individual property. The goal is to develop a natural "green" infrastructure that communities can depend on to protect water resources.

Water infrastructure in new development and redevelopment

Water-sensitive landscape design should begin at the scale of the subdivision, planned unit development or specific plan. During construction and grading, the natural topography, vegetation and soils are usually scraped away or degraded.

The loss of plants and natural streams, and the compaction of soils, leads to urban runoff problems and reduced infiltration.

Preserving Coyote Valley



In the beginning (l), there is canvas of environmental features. Smart planning (r) will design the community around these features.

The City of San Jose is planning a new community of 25,000 homes and 50,000 jobs in the six square-mile Coyote Valley. Rather than look at the valley as a blank slate, project consultant Ken Kay started by studying the natural landscape. "We looked for ways to not only preserve, but also reclaim nature by restoring wetlands and transforming sterile ditches into living streams," Kay said. "Only after key pieces of nature are identified and connected do we begin to plan interconnected roads and possible transit lines, and then identify building sites. The final element is compact development – all kinds of homes near jobs and transit, including some homes and offices over stores."

Residents of the future community will be able to walk from their front doors into thousands of acres of natural open space. A short stroll in another direction will take them to work, school, out for coffee, or to a train station. A specific plan and form-based code are under preparation to assure that future development maintains the green and blue infrastructure and compact form as originally planned. For more information: www.sanjoseca.gov/coyotevalley

A development proposal for undisturbed land should catalog the water resource features of the natural landscape, including plants, trees, streams and water holding sites, small ponds, soils and natural drainage patterns. These features have played an important role in the natural watershed and should be incorporated in the landscape of the new development to the maximum extent possible.

Local governments should have ordinances in place that require protection of large-stature trees and native vegetation and encourage minimal grading and excavation of undisturbed soils.

Appropriate plant selection and xerisecapes

On average, more than half of the water consumed in both single-family and multi-family residences goes to landscape maintenance. Californians use about 977 billion gallons of water for landscape irrigation each year. Improved landscape techniques can reduce this amount up to 75%. [20]

Water-efficient landscaping (sometimes called xeriscaping) includes the selection and use of appropriate plants, limiting water-hungry turf, proper grading and soil preparation, use of mulches and composting, and hydro-zoning that groups plants with similar water needs. To further reduce water demand, we can also collect and recycle rainwater and household graywater, and use better water management and landscape maintenance practices.

Water-efficient landscapes benefit communities, water supply agencies and the environment by reducing:

- Average daily water demand.
- Seasonal peak water demand.
- The need for taking water from environmental uses.
- Runoff and soil erosion, as well as the need for chemical treatments.
- The production of green waste.
- Air pollution from lawn mowing.
- Costs of energy use, stormwater controls, water treatment and wastewater treatment.

While there are many benefits to water-efficient landscapes, the most obvious is lower water bills. A study of condominiums and townhouse complexes in Marin County found that traditional landscaping used 126 to 216 gallons daily for landscaping per dwelling unit. Water-conserving landscapes at similar complexes reduced water use by greater than 50%. [21]

Water-efficient landscaping can reduce costs, maintenance

■ Palm Desert cut water use by one-seventh using drought-tolerant plants

Water-efficient plants don't grow as rapidly, so maintenance requirements are reduced. The City of Palm Desert replaced lawns in street medians with drought-tolerant species. The City now uses only one-seventh as much water. Maintenance costs have also been reduced by two-thirds. Water-efficient landscaping also reduces pests, weeds and disease. Thus, less money is spent on fertilizers and pesticides. Reducing the use of these substances also reduces water pollution. For more information: www.cityofpalmdesert.org/PublicWorks.asp

■ Water district pays residents to reduce size of their lawn, install water-efficient irrigation

The North Marin Water District offers residential customers a cash rebate for reducing the amount of lawn area in their landscapes. The district offers $25 per 100 square feet of regularly irrigated lawn area removed. The removed turf must be replaced with water-conserving plants, vegetable gardens or other low water-using plants. Water-efficient irrigation systems must also be installed. The district offers to pay for 50% of the cost of approved irrigation supplies. For more information: www.nmwd.com/c4g.html

Water-wise irrigation systems

Most irrigation systems apply water on an arbitrary schedule rather than on the actual needs of the plants. Automatic "smart irrigation controllers" are now available that use on-site sensors to evaluate soil moisture, temperature and weather conditions. The newest models (ET irrigation controllers) also measure "evapotranspiration" – to irrigate based on how much water the plant is actually using. These ultra-sophisticated sprinkling systems provide exactly the amount of water needed to keep plants healthy.

State legislation

The State of California passed the Water Conservation in Landscaping Act in 1990 requiring municipalities to adopt the State's Model Landscaping Ordinance (www.owue.water.ca.gov/docs/WaterOrdIndex.cfm) or an equivalent policy. While few adopted the ordinance and most failed to enforce it, this tool is ready for use by local governments.

New policies for efficient landscaping

Assembly Bill 2717, authored by Assemblymember John Laird and signed by Governor Arnold Schwarzenegger in 2004, charged the California Urban Water Conservation Council with developing a task force to make recommendations for improving the efficiency of water use in new and existing urban irrigated landscapes in California.

Many of the legislative, regulatory and administrative changes proposed by the task force have implications for local governments. One immediate effect is that local governments would be required to update their landscaping ordinances. The recommendations also call for stronger enforcement of these local ordinances.

Some of the recommendations that would most affect cities and counties include:

- Adopt water-conserving rate structures as defined by the task force.
- Enforce and monitor compliance with local ordinances and the state model ordinanceincluding an enforcement mechanism to ensure effective irrigation system installation and efficiency.
- Require dedicated landscape meters.
- Promote the use of recycled water in urban landscapes.
- Require that local ordinances be at least as effective as the state model ordinance.
- Require smart controllers.
- Adopt and enforce statewide prohibitions on overspray and runoff.

The Landscape Task Force estimates that implementing these recommendations and corresponding set of actions would save 600,000 to one million acre-feet of water annually from improved landscape water use efficiency – enough water to meet the needs of up to two million households annually.

For a copy of the report: www.cuwcc.org/ab2717_landscape_ task_force.lasso or the California Urban Water Conservation Council, (916) 552-5885

The important role of trees

Trees play several roles in urban stormwater management. Their leaves and bark surfaces intercept and hold water to slow and reduce runoff during rainstorms. A portion of would-be runoff is effectively "held back" by the tree, allowing some to evaporate, some to infiltrate, and the remainder to run off in a slower and more controlled fashion. Computer simulations of deciduous trees in California's Central Valley estimate that for every 1,000 trees, stormwater runoff is reduced nearly one million gallons. Cost savings from these reductions total about $7,000 per year. [22]

As a tree's roots grow, they break up and loosen soils, which makes the ground capable of absorbing more water at faster rates. The increased infiltration reduces flooding and helps replenish groundwater. Tree roots interact with soils to assimilate pollutants in the runoff they capture. Trees also prevent erosion because their roots hold soil in place. [23]

Economic benefits of trees

A recent study modeled rainfall interception and runoff reduction by trees in Santa Monica. The study found that, through reductions in runoff, the City avoided costs for stormwater treatment and flood control costs worth $110,890 annually or $3.60 per tree. [24]

A GIS-based model developed by the U.S. Geological Survey and American Forests calculated the costs of losing existing tree cover and replacing it with impervious cover. For the Oakland area, the model predicted replacing the stormwater services provided by existing tree cover would cost the City approximately $242 million. [25]

Trees increase residential property values. Recent research comparing residential sale prices shows that people are willing to pay 3% to 7% more for property with ample trees versus those with fewer or no trees. An analysis of prices in one city found that each large front-yard tree added about 1% to a home's sale value and an estimated increase of $100,000 (in 1978 dollars) in property tax revenues. [26]

Trees also help merchants enjoy greater sales and cities reap greater tax revenues. University of Washington studies found that consumers shop more often and longer in downtowns that have street trees and landscaping. They are also willing to pay more for parking and up to 11% more for goods and services. [27]

A community forest for Los Angeles

In Los Angeles, Mayor Antonio Villaraigosa is working with TreePeople to move forward on a initiative to plant one million new trees throughout the city. The plan is in keeping with TreePeople's vision of creating a functioning community forest in every square mile of Los Angeles. "Trees are more than ornamental," said TreePeople founder Andy Lipkis. "They can be our partners in making Los Angeles a healthier place to live." For more information: www.treepeople.org

Ahwahnee Water Principle 5 – Minimize impervious surface cover

Permeable surfaces should be used for hardscape. Impervious surfaces such as driveways, streets, and parking lots should be minimized so that land is available to absorb storm water, reduce polluted urban runoff, recharge groundwater and reduce flooding.

Automobile-related hardscapes generally account for more than 60% of the total imperviousness in suburban areas. Streets account for the lion's share of this – about 40% to 50% in residential areas alone. [28] Parking lots take up around 10% of the land in U.S. cities and can occupy as much as 20% to 30% of downtown core areas. [29]

Impervious surfaces inflict more damage to the watershed than any other aspect of development. When rainwater cannot infiltrate, it runs off the surface and carries with it whatever has accumulated there.

When impervious surfaces are linked via a network of streets, parking areas, storm drains and drainage channels, they create an "expressway" for runoff that leads to higher concentrations of pollutants and fast-moving "bursts" of polluted water that is damaging and erosive to local streams and habitat.

Brake wear releases nickel, chromium, lead and copper. Tires shed zinc, lead, chromium, copper and nickel. Engine wear releases nickel, chromium, copper and manganese. All of these toxins accumulate on paved surfaces used by cars, and are carried into storm drains and water bodies in urban runoff. [30]

For most local governments, increasingly strict NPDES urban runoff regulations will be sufficient to persuade a serious look at the way impervious surfaces are used and designed into the built environment.

However, an even greater incentive may be the improved quality of life achieved by reducing the dominance of streets and parking lots in a downtown or neighborhood. Cities that narrow their streets and put cars in smaller lots or parking structures are far more attractive, safe and pleasant places to be.

Downsizing streets

It is generally acknowledged among urban designers and health professionals that most residential streets are too wide. Many communities are now narrowing the street widths in newer developments and redesigning existing streets to devote less space to the car. This technique is known as a street-diet. In places where it has been implemented, it has successfully accommodated the same amount of traffic while creating a more pleasant urban environment.

Arterials are also coming under scrutiny. The Institute of Transportation Engineers, in partnership with the Congress for the New Urbanism, has released a draft guide that will change the design of arterial streets. Rather than focusing on capacity, speed and topography alone, as is currently the case, this new guide (available at www.cnu.org) will change widths and street design to accommodate pedestrians.

Reducing expansive parking lots

Local governments have a tendency to require more parking spaces than are needed. One study of 10 California cities revealed that, even at peak times, lots were filled to only 56% of their capacity. Nevertheless, it is the usual practice to set minimum parking requirements to satisfy maximum parking demand.

Development density, design and use influence parking needs. Each time residential density doubles, car ownership falls 32% to 40%. If transit is available, neighborhood stores are close by, and streets are walkable, even less parking will be required. If daytime uses leave spaces unfilled in the evening, they can be shared with theater-goers. A wise planner will take time to look at these factors rather than simply pull a book of outdated standards off the shelf. [31]

Reducing parking pays off

The City of Palo Alto will defer up to 50% of the required parking spaces as a landscape reserve where the need for parking is not clear. One apartment development deferred 22 of the 95 parking spaces required by the city code, turning the land into a family play lot, a barbeque area and picnic benches. After 15 years, the landscaped area remains – no new parking proved necessary. For more information: cityofpaloalto.org/planning-community

The City of Santa Clara allowed a reduction in parking spaces at a NASA research park, a mixed-use development with housing, retail and office space in close proximity and connected by a network of bicycle and pedestrian paths. Reducing 7,542 parking spaces to 5,200 saved $3 million a year.

The design of the Los Padres and Homestead Condominiums in Santa Clara minimizes impervious surfaces with higher-density housing and narrow streets. The design incorporates pervious areas that allow for the absorption of stormwater and the recharge of groundwater.

The 20-foot wide streets are supplemented by permeable concrete (turf block) fire lanes. The permeable turf blocks allow natural filtration of stormwater and provide a place for children to play, while also allowing for emergency vehicle access. For more information: Judith Silva, jsilva@ci.santa-clara.ca.us

Pervious materials and techniques

Recently, the market has responded by creating pervious materials suitable for sidewalks and other uses. These new products are designed to let water flow through, reducing the water-related problems with impervious hardscapes.

Permeable paving reduces runoff and allows water to infiltrate into the ground where it can be stored and slowly released over time. If conditions are right, it can infiltrate completely to augment groundwater supplies.

Various kinds of permeable paving are available. The costs, benefits and functionality vary. Other pervious products include paving stones or unit pavers – blocks of brick, stone or concrete laid on top of a prepared sand base. Water can travel through gaps between the blocks.

Grass pavers or turf blocks are similar to unit pavers except that the gap between the blocks is designed to allow grass or other appropriate planting to grow there. This system not only allows water to percolate into the ground, but it also slows runoff and filters pollutants.

Permeable pavements are not suitable for high-traffic areas such as busy roads and highways. They are very appropriate for use in places like parking lots, driveways, access roads, public plazas and sidewalks. New porous asphalt and pervious concrete surfaces now on the market look just like conventional asphalt or concrete, but have tiny spaces that allow water to percolate through.

Each of these products usually overlays a base of crushed stone that stores runoff during a rainstorm. The water percolates the upper paving surface and is stored temporarily so it can gradually seep into soils to replenish groundwater, or drain at a controlled rate from the storage area.

The strategies in this section are often part of integrated policy solutions that combine the reduction of impervious surfaces with the use of water-sensitive landscaping.

Narrow streets, more creeks mean less runoff

In Village Homes in Davis, streets are narrow – 20 to 24 feet in width – and parking spaces are downsized. Natural drainage is incorporated in the form of creeks and ponds that act as temporary holding areas. Abundant tress provide shade, reduce runoff and enhance infiltration.

With the exception of playfields, lawns are eliminated and drought-tolerant plants and food-producing vegetation are used extensively. Conservation site design was used to plan the development, which allowed the developers to make use of existing natural features and incorporate multi-functional open space throughout. [32]

III. Stretching Our Water Supplies

"Every time water is wasted, money and a precious resource go down the drain."

– California Water Plan Update 2005

Based on current per-capita use, the water demand generated by California's future residents will require a 40% increase in supplies. While our population is growing rapidly, our water supplies are limited, and there is no way to make "new water" to meet increasing demand.

Communities need to look to under-utilized local resources to fill future needs. They also need to develop a portfolio of water supplies, rather than relying on a single conventional source. Conservation, reclamation, the reuse of graywater and recycled water, and the treatment of contaminated groundwater supplies are all potentially viable "supply" options available to local communities.

By employing water conservation, recycling water and treating contaminated groundwater, California could make another four million acre-feet available to meet future needs. [33]

Reduced reliability of future water supplies

In the past, many communities have looked to far away sources to provide the water they needed. In the future, it is likely that those sources will be increasingly difficult to secure and less reliable, and bear heavy economic, social and environmental costs. Communities that now have excess water are likely to need it to supply their own growing populations. Water supplies to Southern California coming from the Colorado River are already being reduced, as other states are using their full-supply rights to serve their own growing populations. This provides a forecast of what is likely to pass in California as our own communities grow in population.

While some interests still support new surface water reservoirs, none of the proposals in the CALFED Record of Decision has been found to be cost-effective or environmentally acceptable. [34]

The conventional water supply systems – dams, aqueducts and pumping stations that move water around the state – are also dependent upon an aging infrastructure. As the financial costs of maintaining and updating the extensive infrastructure required by these systems – and the environmental costs they create – become increasingly apparent, damming rivers and building aqueducts to move water wherever it is needed will no longer be viable strategies.

Global warming may also play into this scenario. California depends on the Sierra snow pack as a massive natural storage system. Global warming experts warn that snow levels will rise and winters become shorter, effectively shrinking our largest storage system.

Community self-reliance

When a gallon of water is conserved, it's as good as a gallon of water supplied. In fact, it can be better. Conserving that gallon not only makes it available for other uses, it means less wastewater is generated. The potential of water conservation is immense and offers the greatest and most-affordable single source for meeting future needs.

We can design infrastructure and buildings to greatly increase the efficiency with which we use our water supplies. Requiring dual plumbing in all new development – even if recycled water is not yet locally available – will make future use of recycled supplies a viable option. Enabling expanded use of household graywater systems will give consumers an opportunity to reduce their water costs and play a role in decreasing demand on potable supplies. Low-flow and dual-flush toilets, water efficient appliances and "smart" water-saving irrigation technology are practical and available.

Developing these strategies can provide local and reliable sources of water that communities will need to meet California's "show me the water" laws. Conservation, recycling and groundwater treatment meet the criteria of "no regrets actions." They are sustainable strategies that make sense whatever the impacts of global climate change.

Ahwahnee Water Principle 6 – Graywater reuse

Dual plumbing that allows graywater from showers, sinks and washers to be reused for landscape irrigation should be included in the infrastructure of new development.

Water inside, reused outside: Dual drains installed in a second-story shower allow water to be diverted to the garden.

Reuse of domestic graywater is a simple and affordable practice that individual families or entire communities can employ to use water more wisely. Any water that has been used in the home – except water from toilets – is called "graywater." Shower, sink and laundry water comprise 50% to 80% of residential "waste" water, which may be reused for other purposes, especially landscape irrigation. [35]

During droughts, some people resorted to using buckets to transfer bath water to the garden. This practice can be made more convenient by putting two drains in a bathtub or sink – one drains to the garden, the other to the sewer.

Key facts about water reuse

More than half of the water used within the home, typically 60 gallons a day per person, is suitable for reuse. [36]

Using graywater instead of drinking quality water for landscape irrigation can keep lawns and gardens green – eve in times of drought – and alleviate water demand in areas prone to water shortages.

Graywater can also be better for a garden than using treated drinking water. Soap and other products in wastewater are rich in compounds that can pollute waterways, wear out septic systems, and overburden wastewater facilities. However, these same pollutants – phosphorous, nitrogen, potassium and proteins – are sources of nutrients for fruit trees, landscaping and gardens. [37]

State law (California Water Code, Section 14875-14877.3) permits cities and counties to allow the sanitary reuse of graywater.

Graywater systems are affordable and simple to install, especially if done at the time of construction. A workable, code-compliant, graywater irrigation system sends water from showers, sinks and other graywater sources away from blackwater before they mix and go to a sewage system.

Economic implications

Graywater reuse allows water suppliers to purchase less water for their customers. This water will become even more expensive as California's population increases.

Reusing graywater for irrigation means wastewater treatment facilities will have less volume to treat, and can delay expansion of those facilities. It can also extend the life of residential septic systems.

Individual customers save money on their metered water bills when water is used more than once.

Environmental benefits

Reusing water may allow communities to leave fresh water in rivers and streams to protect fish and wildlife. This can be critical during times of drought when river and stream flows can become low and warm, leading to fish-kills.

What local government can do

Cities and counties can require that dual drains be installed in new construction for the purpose of reusing water. As an incentive, the water saved can be counted as a source of water to meet the requirements of new state "show me the water" laws that require developers to prove that enough water is available to serve proposed new housing.

Taking steps to require and encourage graywater

■ Malibu adds graywater to its General Plan, develops guidebook to aid installation

The City of Malibu inserted graywater installation requirements in its general plan: "New development shall include a separate graywater treatment system where feasible" (Policy 3.123). As a result, numerous sites have graywater systems in use. Malibu also developed a "Graywater Handbook" to complement the City's policy. The handbook provides guidelines, resources and techniques to help homeowners and developers integrate graywater systems into their projects.

The handbook is available at www.ci.malibu.ca.us. For more information about Malibu's graywater law and permit process: Deputy Building Official Craig George, (310) 456-2489 x229

■ Santa Monica uses financial incentives to promote graywater projects

The City of Santa Monica has an incentive-based program to encourage graywater projects. The City provides discounts on sewage bills for installing graywater systems and has implemented a grant program to provide partial funding for innovative landscaping projects that incorporate graywater systems and other innovative water-saving features.

The City also provides fact sheets about graywater regulations and additional resources about constructing graywater systems, requesting rebates or receiving general assistance. For more information: Kim O'Cain or Bob Galbreath, Santa Monica Water Resources Management Office, (310) 458-5408

■ LA County recycled water manual provides wide range of tips and resources

The Los Angeles County Recycled Water Advisory Committee has developed an extensive 48-page "Recycled Water Manual" that provides information on goals, general provisions, design and construction, operations and maintenance, marking and equipment, agency contacts and resources for users and site providers. (www.watereuse.org/ca)

■ Los Angeles military base serves as graywater model for others to follow

The Los Angeles Air Force Base in El Segundo uses graywater in toilets and urinals in seven buildings and irrigates their five-acre landscape with graywater. The Los Angeles Air Force Base is serving as a template for bases throughout the world though its innovative use of recycled water. For more information: Office of Public Affairs, (310) 653-1132

Ahwahnee Water Principle 7 – Water recycling

Community design should maximize the use of recycled water for appropriate applications including outdoor irrigation, toilet flushing, and commercial and industrial processes. Purple pipe should be installed in all new construction and remodeled buildings in anticipation of the future availability of recycled water.

"California has the potential to recycle enough water to meet 30-50% of the household water needs of our projected population growth."

– California Recycled Water Task Force

Water recycling is an umbrella term that encompasses the treatment, storage, distribution and reuse of municipal wastewater. Recycling wastewater provides communities an opportunity to develop and diversify their water portfolios with a reliable source of water to meet a range of needs.

Recycled water is municipal and/or industrial wastewater that is treated for reuse. The recycled wastewater generally used in urban settings has undergone biological, physical and chemical treatment processes to bring it up to a standard appropriate for use in fire fighting, toilets, sprinkler systems, landscape irrigation, agriculture, cooling towers, commercial laundries, car washes and artificial snow making. Recycled water is the fastest-growing water supply in California. [38]

Potential contribution to our water supplies

California generates about five million-acre feet of municipal wastewater per year. Currently, 500,000 acre-feet of recycled water is being used around the state. An acre-foot is roughly enough to cover a football field with one foot of water or the amount needed by one or two families for one year.

According to the California Recycled Water Task Force, California has the potential to recycle up to 1.5 million acre-feet per year, saving potable water to satisfy the needs of 1.5 million homes annually. [39]

Safety

The safety of recycled water is well-established: it has been used by California communities since 1929 without any reported health problems. California's regulations governing the production, distribution and use of recycled water are some of the most stringent in the world. The California State Department of Health Services sanctions the use of recycled water for a variety of uses. These include, but are not limited to landscape irrigation, agricultural irrigation, construction water, water for industrial purposes, fountains, and indoor toilet and urinal flushing. Recycled water may also be used in cooling systems for buildings.

Many golf courses are using recycled water for irrigation.

Working with non-potable recycled water is safe if common sense is used and appropriate regulations are followed. There has never been a documented case of disease or other public health effect in the United States related to the use of recycled water that meets established standards, according to the Department of Health Services.

Purple pipes to assure safety

Recycled water, although highly treated, is considered non-potable. A dual-plumbing system is used, with the recycled water carried in purple-colored pipes to prevent the unintentional misuse of recycled water or cross-connection with the potable water system.

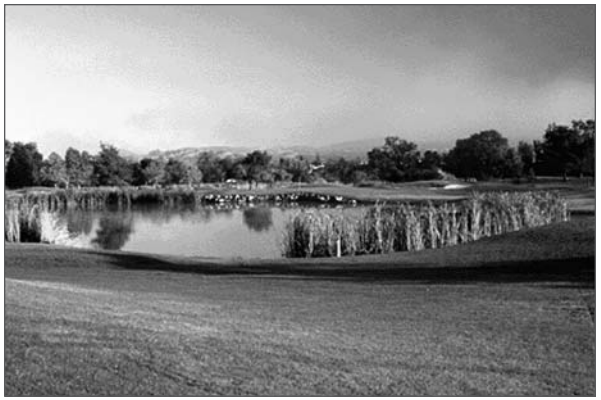
Regulations and guidelines have been developed to address public-health concerns with such misuse. State law prohibits a connection between the recycled water and the potable water systems. Tests are conducted before connecting new sites to recycled water supplies to ensure this does not happen.

Look for the purple pipes

To avoid confusion, pipes, valves and other equipment carrying recycled water are colored purple to make sure that recycled water does not get mixed with potable water.

Purple pipe is just like other PVC piping, except that it carries reclaimed rather than fresh water.

The pipe usually has a continuous banding of lettering on both sides reading, "RECYCLED WATER – DO NOT DRINK."



Matching the quality with the use

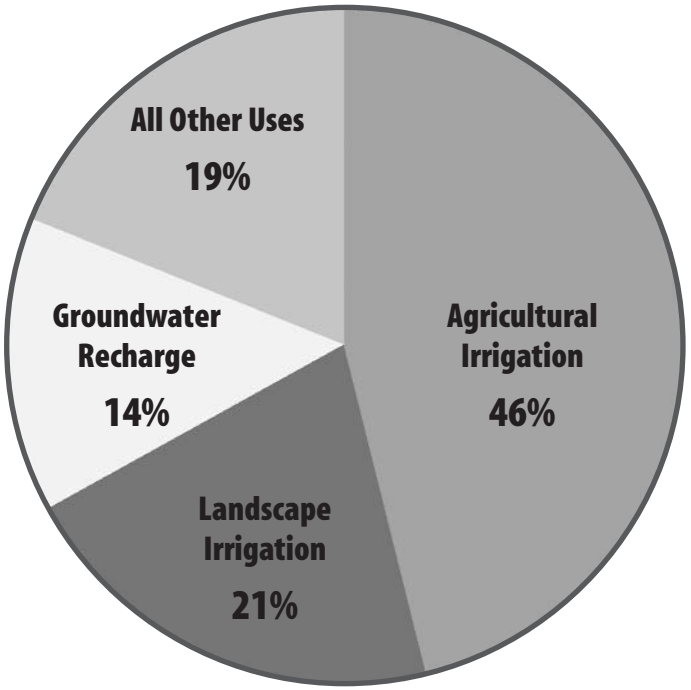
Industrial and commercial users of recycled water are sometimes served by their own pipeline from a wastewater treatment plant. Uses for recycled water cleaned to a lower-quality standard include aquaculture, concrete manufacture and cooling tower operation. Urban irrigation uses include wildlife-habitat maintenance, irrigation of cemeteries and highway landscaping, and nursery irrigation.

In some cases, wastewater from a building's sinks and toilets may also be carried to a separate holding tank in the basement, where it undergoes multi-stage processing similar to that of large-scale wastewater treatment plants. Many of these systems are currently on the market. The resulting water is then recycled through the building's toilet system via the purple pipes. These systems require permits both as providers and users of recycled water.

Large quantities of recycled water are used in California for agricultural purposes. The quality of that water varies based on the degree to which the water may come in contact with food crops or dairy cows. Recycled water supplies can also be used as a part of groundwater storage projects.

California has more than 300 water recycling plants in operation. The Department of Water Resources reports that, as of 2004, California communities were using recycled water at 4,800 sites. [40]

How recycled water is used in California



Notable recycled water venues

- The San Francisco 49ers' practice field in Santa Clara
- The Pebble Beach and Spyglass golf courses
- Ernest and Julio Gallo Winery's vineyards

State law about recycled water

State law indirectly requires the use of recycled water. California Water Code Section 13550-13556 states that the use of potable domestic water for non-potable uses, including cemeteries, golf courses, parks, industrial and residential irrigation uses, and toilet flushing, is an unreasonable use of water if recycled water is available.

California regulates the use of recycled water as directed under Title 22. Each use of recycled water must have a permit from the local authority administering the recycled water program, which has the responsibility of enforcing the rules and regulations. The local authority is usually the retailer of recycled water to the site. Permit requirements typically include construction, inspection, cross-connection certification, site-supervisor training and a schedule of the hours that recycled water can be used. These local authorities can specify what sites and/or uses of recycled water are to be used in their service area, as long as they comply with state requirements.

The Regional Water Quality Control Boards require that recycled water customers conduct an inspection at least once a year while the recycled water system is in use. The results of this inspection must be documented and submitted in a written report. According to Department of Health Services regulations, at dual-plumbed use sites the customer is responsible for conducting a periodic cross-connection test every four years, unless visual inspections reveal a requirement for more frequent testing. The agency operating the recycled water program also promulgates rules and regulations determining the way recycled water systems are implemented and operated, and how records are to be kept.

Plans for projects using recycled water should indicate all water sources and the locations and specifications of all pipes and devices. Design standards must be set to protect public health and the integrity of the overall water supply, setting minimum separations for recycled and potable water pipes, minimum standards to protect drinking fountains and eating areas from overspray, and restrictions on runoff and ponding to protect domestic well water.

Recycled water systems also require regular preventative maintenance, including inspections, making certain that pipe markings remain level, monitoring of spray patterns and runoff from irrigation, and accurate recordkeeping of maintenance.

Economic implications

While the economics of recycled water depend upon the place and the use, recycled water can be less expensive than purchasing new supplies. As water supplies grow more scarce, the economic advantages of recycled water will continue to increase.

In Southern California in particular, recycling water reduces the enormous cost of energy required to import water. Orange County's Groundwater Replenishment System treats water so that it can be safely pumped into potable groundwater supplies, creating water for 144,000 families annually. Despite $486.9 million in construction costs, studies found that the system produced greater benefits for its cost than any of the alternatives. It will also use 50% less energy than importing water, resulting in additional savings. [41]

Environmental benefits

Recycled water can be used to enhance or restore wetlands that provide wildlife habitat, flood protection, improved water quality and recreational amenities. It also reduces the volume of potable water that must be withdrawn from rivers, lakes and groundwater to maintain the natural ecology of those bodies of water.

Recycled water projects and programs make a difference in communities across California

■ Recycled water saves supply and money in Rohnert Park

The City of Rohnert Park has been using recycled water to reduce demand on potable water supplies since 1988. Approximately 510 acres of land are irrigated with recycled water, saving more than three million gallons per day of potable city water. An extensive distribution system distributes recycled water to golf courses, city parks, school grounds and commercial properties.

The lead developer of 1,610 homes planned along Rohnert Park's eastern border has requested approval from the Santa Rosa Board of Public Utilities to build three wastewater storage ponds capable of storing up to 10 million gallons of recycled water. If the $18 million project is built, it will be the largest reuse project in Sonoma County since the $205 million Geysers' wastewater-to-electricity project went operational in December 2003. The ponds, which would be filled during the winter, would be drained during the spring and summer to irrigate the front yards of 880 homes, the front and back yards of 730 multifamily units, and several acres of commercial development planned within the nearly 300-acre area. For more information: Brookfield Homes, (925) 743-8000

■ Marin water district expanded recycled water for new uses

The Marin Municipal Water District was the first water supplier in California to use recycled water for car washes, air conditioning cooling towers and commercial laundries. Since the early 1980s, the district has pioneered the use of recycled water for non-agricultural purposes in northern California. Up to two million gallons a day are recycled and distributed in a separate pipeline system to more than 250 customers in northern San Rafael. Recycled water is used for irrigation, toilet flushing and other non-drinking purposes.

The water that the district recycles is wastewater that has been treated by the Las Gallinas Valley Sanitary District. To recycle this water, the district filters it and treats it further at its recycled water treatment plant, meeting the most stringent standards in the country. The finished recycled water is crystal clear, odorless and free of harmful bacteria. It is similar in quality to water in swimming pools. The district also manages the demand for water by encouraging efficient water use through various conservation programs. For more information: Marin Water District Conservation Department, www.marinwater.org or (415) 945-1520

■ Downtown Oakland high-rise incorporates dual plumbing

In 2001, the Shorenstein Company altered its plans for 555 City Center – a premier office building in an infill, redevelopment area of downtown Oakland – to include dual plumbing for recycled water for toilet and urinal flushing. It has become the first dual-plumbed high-rise building in Northern California, with a savings of 11.2-acre feet of drinking water per year. For more information: Shorenstein Company, www.shorenstein.com or (415) 772-7000

■ Recycled water a big part of Irvine Ranch Water District's supply

Recycled water now makes up about 20% of the Irvine Ranch Water District's total water supply: 18 million gallons a day are treated, providing water for 80% of all business and community landscaping needs including parks, golf courses, school grounds and gardens.

In 2000, the Lakeshore Towers' dual-plumbed office complex became the 15th building within the Irvine Ranch Water District's service area to convert to recycled water for toilet flushing. The conversion is the second one at Lakeshore Towers and one other building is slated for future conversion to recycled water for toilets. For more information: Lakeshore Towers, www.lakeshoretower.com/pages/Profile.html or (949) 955-5253

What local government can do

- ➢ Amend the local building code to require the installation of dual-purpose pipes (purple pipes) in new construction. Where recycled water is available, this step will implement state law. Where it is not, communities will be building the infrastructure for when recycled water is available in the future.
- ➢ Amend the building code to require the installation of purple pipes in remodeled buildings.
- ➢ Adopt a water recycling ordinance. The California section of the WateReuse Association web site provides a model water recycling ordinance (www.watereuse.org/ca/modelwrord.htm). The ordinance's intent is to maximize resource conservation and streamline implementation of water recycling projects in conformance with state law. The ordinance can also be tailored to conform with local rules and regulations.
- ➢ Work with wastewater management authorities to develop the necessary reclamation and treatment facilities.
- ➢ Work with local water suppliers to add water recycling to their Urban Water Management Plan and consider sharing resources for a joint public-private venture.
- ➢ Work with developers to create incentives or otherwise streamline the deployment of dual-plumbing systems.
- ➢ Initiate or join a public outreach and education program to educate the community about the benefits of using recycled water and address their concerns.

Recycled water works in many different settings

■ Recycled watering part of master-planned community in Placer County

The Serrano development in Placer County is one of the first master-planned communities to use recycled water for large-scale residential lawn watering. Recycled water is used to water common areas, golf courses, an elementary school's landscaping and the front and back lawns of more than 3,400 homes.

Due to the success of Serrano, the El Dorado Irrigation District – which is now saving millions in treatment costs and reduced discharges –is asking that new developments adopt programs similar to Serrano's whenever feasible. Homeowners reap savings in their water bills as well.

For more information: Parker Development Company, www.serranoeldorado.com/about-1b.html or (916) 939-3333

■ Windsor finds big irrigation savings in recycled water

The Town of Windsor is saving approximately 275 million gallons of drinking water a year by irrigating 400 acres of golf course, vineyard, parks, pasture and fodder croplands with recycled water. A new housing development uses recycled water to irrigate front yards and offers residents the option of using reduced-cost water that is recycled to irrigate backyards.

For more information: Windsor Water Department, www.windsorgov.com/towwater.html (970) 686-7476

"It is not a question of whether or not we grow, but how. This is about the future of our communities; the decisions we make need to reflect our commitment to protecting the water resources we depend on."

– Jennifer Hosterman, City of Pleasanton Mayor

Ahwahnee Water Principle 8 – Water conservation

Urban water conservation technologies such as low-flow toilets, efficient clothes washers, and more efficient water-using industrial equipment should be incorporated in all new construction and retrofitted in remodeled buildings.

Projections by the California Department of Water Resources indicate that urban water conservation will be the leading source of water for California's growing population. Water conservation is one of the main reasons that urban areas have been able to accommodate the last 20 years of growth with approximately the same amount of water that they consumed in the 1990s. [42]

Existing conservation technologies include low-flow toilets and showerheads, efficient clothes washers, weather-based irrigation controllers, and more efficient commercial and industrial cooling equipment.

To meet the supply demands of California's growing population at the lowest cost and protect against droughts, local governments should expand the use of water conservation. The urban sector, and residential use in particular, provide the greatest opportunities for cost-effective water savings through conservation.

Potential contribution to water supply

It is estimated that urban water conservation can contribute 2.0 to 2.3 million-acre feet a year to our water supplies – enough to supply the current household demands of more than two million new families. (One acre-foot is roughly the amount needed by two families for one year.) [43]

State laws that encourage or require conservation

Article X of the California Constitution prohibits waste and unreasonable use of water.

California's Water Code Section 375 allows any public entity that supplies water to adopt and enforce a water conservation program that requires installation of water-saving devices.

The Urban Water Management Planning Act (Water Code Section 10620-10621 and 10644) requires urban water suppliers with more than 3,000 customers to adopt water management and conservation plans in five-year increments. These plans must be filed with local land-use planning agencies and are a key resource for water planning and coordination between water agencies and local government.

In 2001, SB 221 (Government Code Section 66473.7) and SB 610 (Water Code Section 10910-10915) were enacted to ensure adequate supplies prior to approval of development projects with 500 homes or more, and encourage better coordination between water suppliers and local land use agencies. Water conservation is a low-cost way to meet the water needs of new development.

Economic implications

Conservation is the least expensive strategy available to us. According to the Pacific Institute, more than half of the urban water conservation strategies can be achieved at $200 per acre-foot or less. By comparison, the Metropolitan Water District of Southern California currently charges its members over $400 per acre-foot. [44]

Approximately 33% of the energy budget of city governments in California is used for pumping water and 23% is used for treating wastewater. [45] Water conservation has the potential to significantly reduce local government energy costs because it reduces the need to pump water and to treat wastewater.

The State Water Project is the largest single user of energy in California, consuming an average of 5 billion kWh of electricity each year. [46] Assuming a relatively low rate of 8 cents/kWh, the electricity cost to move this water is $400 million per year.

Investing in improved water efficiency creates local jobs and local benefits. By contrast, investment in distant supplies sends money out of the community.

Environmental benefits

Water-conserving activities are key to sustainable development because they help protect water as a natural resource, minimize the use of chemicals needed to treat water and wastewater, and reduce energy use and pollution associated with pumping and transporting water.

Water conservation reduces demand, which in turn reduces the need to expand water storage projects and allows more water to remain in our rivers and streams for recreation, fisheries and natural habitat.

Conventional methods of increasing supplies, building more or larger dams, transporting water long distances, and excessive pumping, have harmed the state's aquatic resources. Using conservation, we can supply enough water to meet our needs without further damaging the natural heritage of California.

Reducing water use, and consequently wastewater generation, lessens environmental damage resulting from withdrawals, wastewater discharge and overuse of surface or groundwater.

Working with others at a regional level to improve water-use efficiency

Although many conservation efforts are local in scope, their effects are regional because the supplies that communities depend on are shared at the regional, state and inter-state levels. There is enormous potential for cities, counties, water districts, state and regional agencies, and developers to work together under the current regulatory context.

The recent "show me the water" laws and Urban Water Management Plans raise the bar for developing locally reliable supplies because without proof of adequate supplies, communities and developers are unable to engage in growth needed to accommodate future residents.

Because the supply of housing is also a regional issue, improving regionally based sources of water will give communities in the region greater self-sufficiency and more control over how they develop.

What local government can do

- Local building codes can be amended to require the use of low-flow toilets, showerheads and efficient irrigation technologies."
- Local retrofit ordinances can require the retrofit of water-conserving technologies in both residential and industrial facilities upon resale.
- Local governments can work with water suppliers to develop incentives, rebates and outreach programs to help residents, property managers and developers incorporate more efficient technologies into their homes and projects.

California communities find innovative ways to encourage the public to conserve water

■ New fee structure has rewards for Irvine Ranch Water District

When rapid population growth led to dwindling supplies and increased wholesale water charges, the Irvine Ranch Water District implemented a new fee structure that rewards water efficiency and identifies waste when it occurs. The long-term goal was to develop a water-wise conservation ethic within the community while maintaining stable utility revenues. Within a year, water use declined by 19%. Over the next six years, the district saved an estimated $33 million in water purchases. For more information: Irvine Water District Conservation Office, (949) 453-5325 or www.irwd.com/Conservation

■ Santa Monica uses outreach, loans in its conservation program

Groundwater contamination and rapid growth created a dual threat to the City of Santa Monica's water supplies. The City was forced to increase water purchases and decided to take a multi-faceted approach. It developed a conservation program that includes education and outreach, water-use surveys, landscaping measures, toilet retrofits and a loan program. The result was a 14% reduction in water use, a 21% reduction wastewater flow and a net savings of $9.5 million between 1990 and 1995. For more information: City of Santa Monica Environmental Programs Division, www.santa-monica.org/epd or (310) 458-2213

■ Metropolitan Water District offers free conservation workshops

The Metropolitan Water District of Southern California – a consortium of 26 cities and water districts that provides drinking water to nearly 17 million people – works with local communities to provide free water conservation workshops to community members as well as landscaping firms. The workshops cover topics including how to detect wastewater, maintain sprinkler systems properly, and develop landscape designs appropriate to the climate. The workshops are offered in both English and Spanish. For more information: www.bewaterwise.com/pda.html or Diane Harrelson, (213) 217-6167 or dharrelson@mwdh2o.com

■ Santa Barbara County water suppliers launch media campaign

Cities and counties can be involved in educating the community on water conservation practices. The water suppliers of Santa Barbara County joined forces to launch the Santa Barbara County Be Water Wise Media Campaign. Campaign sponsors included the Santa Barbara County Water Agency, the Cities of Buellton, Santa Barbara, Santa Maria and Solvang, the Carpinteria Valley, Goleta and Montecito water districts, and the Cuyama Los Alamos and Vandenberg Village community services districts.

The campaign used materials developed and shared by the Metropolitan Water District of Southern California to run ads in local media outlets. To view ads and materials from the campaign: sbwater.org/Programs.htm#Media. For more information: Helena Wiley, Santa Barbara County Water Agency, (805) 568-3451 or hwiley@cosbpw.net

The City of Santa Barbara also offers residents a free "water-checkup" on how to read their water meters and use water efficiently, check for indoor and outdoor leaks, measure the efficiency of irrigation systems, and develop an irrigation schedule. City water customers can call the Water Conservation Hotline for assistance. For more information: www.santabarbaraca.gov/Government/Departments/PW/WCHome.htm

Ahwahnee Water Principle 9 – Cleaning up groundwater supplies

Groundwater treatment and brackish water desalination should be pursued when necessary to maximize locally available, drought-proof water supplies.

In rural areas and along the state's central coast, 90% of the drinking water is supplied by groundwater. Nearly one in three Californians – more than 9 million people – rely solely on groundwater for their water needs. In fact, California's groundwater supply is 20 times greater than the amount of water stored behind all our dams. [47]

Groundwater resources are particularly valuable in California because – unlike surface supplies – they are widely distributed throughout the state. Groundwater also has the benefit of year-round reliability, unlike surface supplies that are available from rain in the winter and snow melt in the spring but can be scarce in the summer and fall when they are most needed.

Sadly, in many areas, groundwater is already over tapped and/or contaminated. In some cases, desalination can treat these supplies to meet local needs.

Threats to groundwater

Groundwater is being contaminated by a number of sources, but salts, stemming from urban, agricultural, wastewater and seawater intrusion, have become one of the greatest threats to California's groundwater resource.

Seawater intrusion is a growing problem due to the over-drafting of coastal groundwater basins. As groundwater is pumped from the aquifer, seawater flows inland through permeable ground. Under normal conditions, the fresh water acts as a buffer by leaving no space in the aquifer. When too much fresh water is drawn, the sponge-like aquifer can soak up the seawater.

In the Salinas Valley, for instance, 50 years of overdraft has allowed seawater to move five miles inland, contaminating local groundwater aquifers that provide water for the region's $3-billion agricultural economy and the public water supply for local communities.

Saltwater contamination of groundwater is not only a coastal phenomenon. In the Central Valley, ancient pockets of isolated saltwater have been drawn into nearby freshwater aquifers as a result of overdraft.

Since management of groundwater is primarily a local responsibility, cities and counties are positioned to make important decisions that protect groundwater as a long-term, sustainable supply for local water needs. The first step is to protect these resources with land use practices based on the first five Ahwahnee Water Principles that help protect surface waters and recharge groundwater supplies. When that fails, the more costly step of desalination is an option.

Groundwater desalination

Desalination is a process that removes salt from brackish (low-salinity) water or seawater so it is available for beneficial use. Reverse osmosis, the principal method used for desalination in California, can be used to remove salt as well as specific contaminants in water such as chemicals, volatile organic carbons, nitrates and pathogens.

Groundwater desalination has been used in California since 1965. Dramatic improvement in the treatment technology has resulted in a significant rise in desalination capacity. Currently, 17 groundwater desalination plants operate in California, with six new plants in the design and construction phase.

Desalination is an important component of water recycling (Awhahnee Water Principle 7). Desalting wastewater expands the range of beneficial uses of recycled municipal wastewater. Roughly 150,000 acre-feet of the 1.2 million acre-feet per year of the recycled water expected by 2030 will be desalinated.

Potential contribution and economics

The State of California Desalination Task Force found that there is a potential for 290,000 acre-feet of additional groundwater desalination at costs ranging from $130 to $1,250 per acre-foot. The benefits of desalination include:

- Increased water supply.
- Decreased diversion from environmental uses.
- Increased water supply reliability during drought periods.
- Reclamation and beneficial use of waters of impaired quality.
- Diversification of water supply sources.
- Improved water quality.
- Protection of public health.

Desalination has historically been prohibitively expensive. However, recent technological advances have made it more efficient, less energy-demanding and less expensive. These advances have reduced desalination costs to levels that are comparable to, and in some instances, competitive with the cost of purchasing outside water supplies. [48]

Chino Basin desalination project serves fast-growing region

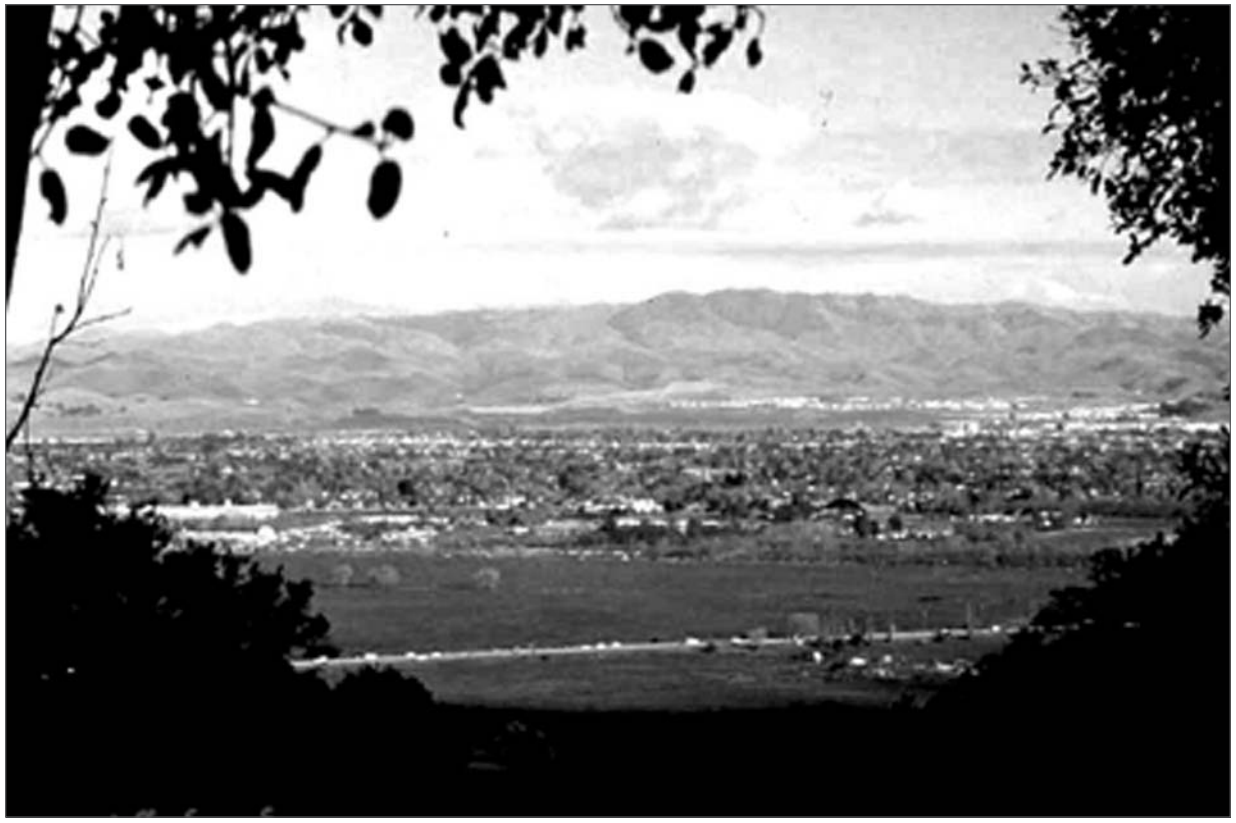
The Chino Desalter Authority was formed as a joint powers authority in February 2002 to manage the production, treatment and distribution of highly treated potable water to cities and water agencies throughout its service area. The authority and the Inland Empire Utilities Agency are advancing groundwater desalination as part of their Optimum Basin Management Plan. They have installed pumps and filters to remove nitrates from groundwater supplies in the Chino Basin, one of the fastest-growing areas in the nation. About 27,000 acre-feet has been restored so far, with the goal of reducing dependence on expensive imported water supplies and providing a local drought-proof supply of new water for local communities.

The desalination project is also linked to other efforts to maximize local supplies. The Chino Basin Recycled Water Groundwater Project is part of the comprehensive Water Supply Enhancement Program jointly sponsored by the Inland Empire Utilities Agency, Chino Basin Watermaster, the Chino Basin Water Conservation District and the San Bernardino County Flood Control District. Combined, these efforts aim to improve the quality of local drinking water wells, enhance water supply reliability and lower the cost of water to residents throughout the Chino Basin. For more information: Chino Basin Watermaster, www.cbwm.org, or Inland Empire Utilities Agency, www.ieua.org

What local government can do

- Allow developers to fund groundwater cleanup as a condition of approval as a way of meeting California's "show me the water" laws.
- Work with water suppliers to include groundwater treatment in Urban Water Conservation Plans.

IV. Implementing the Ahwahnee Water Principles



The five implementation principles are designed to provide guidance to local leaders and their staff members to ensure the most effective application of the measures suggested by the nine community principles.

In brief, these implementation principles suggest involving key watershed stakeholders in the decision-making process, and they point out that the best projects have more than one benefit and that evaluating the effectiveness of our policies once they are implemented is a very good idea.

Implementation Principle 1 – Coordination is key

Water supply agencies should be consulted early in the land use decision-making process regarding technology, demographics, and growth projections.

The Ahwahnee Water Principles are suitable for implementation by individual cities or counties through their land use processes. However, to maximize their effectiveness, local jurisdictions need to engage water suppliers as partners. Recent legislation has made this even more important.

Lack of coordination between water agencies and land use agencies can lead to the approval of development projects that lack water to meet projected needs. This problem led to legislation in 2001 that encourages greater coordination between water suppliers and local government planning agencies.

"Show me the water laws"

Senate Bills 221 and 610 are the so-called "show me the water laws." SB 221 requires a city or county to obtain written verification that sufficient water supplies are available before approving proposed development projects of larger than 500 residential units, retail projects larger than 500,000 square feet, and office projects larger than 250,000 square feet. The water agency must provide verification of a sufficient supply – defined as enough water to meet the needs of the proposed development project in normal years as well as during a drought.

SB 610 provides the process for implementing SB 221. This measure requires that a water supply assessment be included in any environmental documentation for projects subject to the California Environmental Quality Act, that also meet the size thresholds above.

The SB 610 supply assessment does not preclude development, SB 221 prohibits approval of a proposed subdivision map or parcel map unless and until sufficient supplies are documented.

Responsibility for meeting the requirements of this legislation lies solely with the city or county, even though it is the water agency that documents the availability of water for the new project.

Urban Water Management Plans

Municipal water agencies are required to prepare an Urban Water Management Plan every five years. The plan must evaluate supplies and demands over a 20-year horizon, including wet, dry and normal years, and specify measures for ensuring future water supplies. Urban Water Management Plans provide a foundation for satisfying the specific requirements of the "show me the water" laws.

Cities, counties, developers and water agencies share an interest in the information these planning documents provide. They should work in concert to ensure that plans are complete and to identify water management options that make the most of existing water supplies. That way the plan can be used in development planning and approval to ensure that statutory requirements are met.

The community's future water needs will be a function of population growth and the location and design of new development. Water agencies and planning departments will both benefit if plans reflect input from the cities and counties supplied by the water agencies.

The land use agency must provide an accurate picture of planned land uses to forecast and plan for future water needs. Water agencies must provide a clear picture of available sources of water supply and the various costs and benefits of those sources so that local land use agencies can plan for future growth in a manner that includes a careful evaluation of the water supplies available to meet future needs.

Once completed, water agencies are required by state law to provide copies of their Urban Water Management Plans to the cities and counties they serve. Planning staff should review the plans of water suppliers in their jurisdiction to see if they contain sufficient supply and demand analysis to meet the provisions of the "show me the water" laws.

Coordinating the analyses needed for land use and water planning facilitates sustainable development practices, such as the following:

- To advance the use of recycled water, a community needs to ensure that the water agency identifies and analyzes recycled water as a source in their Urban Water Management Plan. The water agency will also need to be certain that the city or county will be requiring purple pipes in new development.
- To be certain that conservation measures will maximize the efficient use of existing water supplies, the water agency can work with the cities or county in its service area to develop programs that require or incentivise the installation of water-efficient technologies such as low-flow toilets, shower heads and smart irrigation systems.
- To count on groundwater supplies as a source, water agencies need to know that land use policies are in place to protect groundwater supplies from contamination and loss of infiltration for recharge.

All of the above measures can be included in development agreements.

General Plans

It is also advisable for local governments to perform a water supply and demand analysis when preparing a general plan update. This should be done in cooperation with the water agency to ensure that the general plan does not designate properties for future growth where there is no available water supply.

Conserving water makes more of it available for agriculture and environmental uses.

"Improved efficiency and increased conservation are the cheapest, easiest and least destructive ways to meet California's future water needs."

– Peter Gleick, President, The Pacific Institute

Water coordination is crucial for regional self-sufficiency

■ Sonoma County thinks regionally to implement water conservation programs

Acting regionally, the Sonoma County Water Agency – which includes the County, the Cities of Santa Rosa, Petaluma, Sonoma, Cotati and Rohnert Park, and the water districts of Forestville, North Marin and Valley of the Moon – is the first water wholesaler in the state to make a 100% commitment to water conservation and recycling as supply sources on behalf of all of its retailers.

Notably, the agency is requiring that all of its retailers join the California Urban Water Conservation Council and commit to implementing the 14 best management practices of urban water conservation. The agency oversees planning and implementation of regional water conservation programs for its eight retail water contractors and has developed a self-sustaining funding mechanism to support those programs.

Collaboration between the eight-member Water Advisory Committee brings together city council and county board members, city and district managers, and senior-level staff. The North Coast Water Conservation Group has also been established as an clearinghouse for information on current issues and coordination of regional programs and events.

Sonoma's regional goal is to achieve a combined yearly water savings of 6,600 acre-feet by 2015. The agency developed a Water Conservation Plan as a guide to achieve this goal and has reduced the contractual water entitlements of each contractor to reflect these savings, further demonstrating their commitment to water efficiency. For more information: Cristina Goulart, Sonoma County Water Agency, (707) 523-1010 or www.scwa.ca.gov

■ East Bay Municipal Utility District coordinates with local planners

The East Bay Municipal Utility District (EBMUD) worked with 22 local land use agencies in its service area to complete "District Wide Update of Demand Projections." EBMUD developed a geographic information system to complete the analysis, which calculated demand based on land uses in the service area. Accurate land use-based analysis required coordination with local planning departments to identify the phasing of future growth and accommodate for the variation in water demand from different land uses. For more information: www.ebmud.com

Implementation Principle 2 – Regional collaboration

City and County officials, the watershed council, LAFCO, special districts, and other stakeholders sharing watersheds should collaborate to take advantage of the benefits and synergies of water resource planning at a regional level.

"Regional efforts are needed to effectively coordinate local approaches to development and achieve better watershed-wide results."

– U.S. Environmental Protection Agency

Successful integration of water into land use planning is achieved through a watershed-wide perspective. A single community within a watershed can enact measures to protect water quality or prevent flooding but they won't be as effective as when neighboring communities enact similar measures. Coordination is needed because watersheds do not tend to follow jurisdictional boundaries.

Fortunately, there are numerous venues for city and county elected officials to affect planning on a watershed level.

Important opportunities are also available to local representatives who serve on a LAFCO or Council of Government.

Local elected officials as conveners

Mayors, city councilmembers and county supervisors are in an excellent position to bring together key players within a watershed to focus on its preservation.

Water collaboration produces more fish for North counties

In 1997, Del Norte, Humboldt, Mendocino, Siskiyou and Trinity Counties agreed to work collaboratively to boost declining salmon and steelhead populations in Northern California. This commitment led to the development of the Five Counties Salmonid Conservation Program (www.5counties.org), which seeks to protect the region's economic and social resources through the conservation and restoration of salmonid populations to healthy, sustainable levels. Through this effort, they agreed to base decisions on watershed rather than county boundaries. The partnership has led to on-the-ground restoration projects, the development of regional policy guidelines and ongoing collaborative resource management.

The program is also becoming more involved in land use planning. Water quality and quantity can be drastically improved by providing incentives to private landowners to maintain riparian setbacks, as well as working with county planning departments to integrate specific ordinances into their general plans that combine a watershed-based approach with private land development.

Teaming up to buy land

San Diego County and the Southern California Cities of Escondido, Encinitas and Solana Beach formed a partnership to preserve the watershed in collaboration with the Encinitas-based San Elijo Lagoon Conservancy and the Escondido-based Escondido Creek Conservancy.

The partnership is facilitating the purchase of the land. The local communities are working to maintain it by clearing creek debris, grappling with non-native plant species that crowd out native plants and restoring native shoreline habitats that filter pollution before it enters receiving waters.

For more information: Doug Gibson, (760) 436-3944 or www.scwrp.org/taskforce_sandiego.htm

Local Agency Formation Commission

Local Agency Formation Commissions (LAFCOs) review proposals for the formation of new local governmental agencies and for changes in the organization of existing agencies (such as annexations). There are 58 LAFCOs working with nearly 3,500 governmental agencies. LAFCO decisions strive to balance the competing needs for efficient services, affordable housing, economic opportunity and conservation of natural resources.

The composition of LAFCOs varies from county to county, but nearly all have two members from the board of supervisors and two members from city councils within the county. Many LAFCOs also have two members from independent special districts in the county and a representative from the public.

A 1995 law added section 10910 to the California Water Code that permits LAFCOs to require cities, when applying to expand their sphere of influence, to provide information for determining whether existing and planned water supplies are sufficient to meet current and new demands.

LAFCOs cannot demand conditions for their approval of a project – they can only say "yes" or "no" to an expansion request. However, LAFCO boardmembers can base their decision on the impact of the proposed expansion on the watershed. For instance, a LAFCO denied an annexation request by the City of Folsom because the local water agency maintained that there were not adequate water supplies to serve the new development.

LAFCOs can also offer guidelines such as the Ahwahnee Water Principles to potential applicants.

Councils of Government

A Council of Government (COG) has responsibility for producing transportation plans within its region. A COG in a region with poor air quality must also address air pollution or be threatened with the loss of its transportation funds.

COGs representing 80% of California residents have recently undertaken visioning exercises that address where and how their communities should grow. All have adopted a growth strategy that includes preservation of existing open space and a vision for compact, walkable, mixed-use communities.

Their legal mandate does not include water in the visioning process, but these processes offer an ideal opportunity to apply a regional approach to managing water resources.

Metropolitan Planning Organizations

Metropolitan Planning Organizations (MPOs) are the entities that administer federal transportation dollars. COGs often serve as the regional MPO. The Metropolitan Transportation Commission in the San Francisco Bay Area and the Sacramento Area Council of Governments (which serves as that region's MPO) provide financial incentives to cities and counties in their regions for concentrating growth around transit and for planning and building compact, mixed-use development. These same strategies are found in the first Ahwahnee Water Principle.

Resource conservation districts

Resource conservation districts are formed as independent local liaisons between local, state and federal government and landowners. California has more than 100 resource conservation districts, funded largely through grants and occasionally through county property tax revenues.

California's resource conservation districts are "special districts" organized under the state Public Resources Code, Division 9. Each district has a locally elected or appointed volunteer board of directors composed of landowners in the district. The districts address a wide variety of conservation issues, including watershed protection and water management.

Resource conservation districts can facilitate cooperation between local government and farmers, ranchers and other landowners. They have an expanding role in linking land use planning and water management. Several are extending their focus on agricultural issues in primarily rural areas to address a growing slate of concerns related to urban areas.

Many are also engaged in local land-use planning activities and watershed management. Many watershed coordinators are housed in local resource conservation districts, which make them a valuable resource for getting stakeholders to the table in planning and management processes.

Regional visions help planning for growth and water needs

■ Sacramento region uses visioning process to create a water-demand "blueprint"

The Sacramento Area Council of Governments (SACOG) has completed water-demand projections for the areas covered in the Sacramento Blueprint visioning process. SACOG planners worked with local water agencies to model water demand projections for each of the different scenarios that were envisioned.

The results indicate that the SACOG-preferred Blueprint Scenario, which advocates smart growth for the region, would generate less water demand than the status quo. In fact, analysis found that implementing smart-growth land use practices in the Sacramento region would net a 31% reduction in needs for the increment of anticipated growth. For more information: sacregionblueprint.org/sacregionblueprint

■ Northwest Colorado uses "natural" boundaries for regional water quality plan

Other COGs in the West are explicitly integrating water into their work. For example, the Northwest Colorado Council of Governments (NWCCOG), whose planning region includes portions of the Colorado River and the North Platte River watersheds, is taking a regional approach to developing a regional water quality plan. It became involved because the natural and planning boundaries of the region's watersheds "do not neatly correspond to the planning regions with respect to the Water Quality Management Plans." [49] For more information: www.nwc.cog.co.us/Programs/Water/water_ quality_quantity_committee.htm

"California's regions cannot meet all of their objectives with a single water strategy. Integrated regional water management is the future for California because it will help regions diversify their water portfolio strategies and get the most from local, state and federal resources and funding."

– Lester Snow, Director, California Department of Water Resources

Many benefits grow out of watershed partnerships

■ Sun Valley watershed group creates flood protection and water supply solutions

The Sun Valley Watershed Stakeholders Group began meeting in 1998 under the leadership of the Los Angeles County Department of Public Works' Watershed Management Division, which was formed to create integrated solutions for flood protection, water supply and stormwater quality in the county.

The Sun Valley Watershed Management Plan was initiated "to solve the local flooding problem while retaining all stormwater runoff from the watershed, increasing water conservation, recreational opportunities, wildlife habitat and reducing stormwater pollution."

The planning process developed a set of alternatives that were evaluated according to the costs and benefits they provided for flood control, water quality, water conservation and total cost. The plan provides data and analysis to take a watershed-based approach to solving water management problems in one of California's most urbanized watersheds. For more information: www.sunvalleywatershed.org

■ San Diego County groups band together for collaborative watershed management plan

In 1998, a group including foundations, two conservancies and a resource conservation district signed a formal agreement to protect and improve the Carlsbad Hydrologic Unit through a collaborative watershed management plan. San Diego County and seven cities joined the effort, along with federal, state and regional government entities and nonprofit organizations. The project has been working to restore habitat and raising funds to acquire watersheds to protect them from development.

Watershed partnerships

Watershed partnerships, often called watershed councils, are formed when local watershed stakeholders come together to protect their watershed. These groups are engaged in a wide range of efforts to protect and restore the state's water resources and the watersheds that sustain them. These include local restoration efforts, data collection and monitoring, local education and outreach efforts, and providing a conduit between local government, landowners and citizens interested in protecting the watershed. Many are also involved in long-range planning and assessment projects to provide information that can affect policy and management decisions.

Not every community has an active watershed group, but there are currently more than 300 watershed groups in California.

Watershed groups are funded through local, state and federal sources. Most depend on state and federal grants matched by local funds. Recent state funding to promote community-based watershed efforts has come through CALFED's Watershed Program.

Propositions 40 and 50 (administered by the State Water Boards and the Department of Water Resources), the Non-

Point Source program 319 funds (as part of the Clean Water Act's Section 319) and the State Water Boards' revolving fund and community assistance grants are the primary funding sources supporting local watershed management efforts.

Many watershed councils and state officials are worried about future support for watershed projects as these funding sources end.

Federal funding has been available through the Department of Conservation's Watershed Coordinator Grant Program, which funds watershed coordinators through local resource conservation districts.

Watershed management plans have been developed over the years by watershed partnerships.

Integrated water management efforts

The State of California has developed an Integrated Regional Water Management Grant program, which has encouraged integrated regional strategies for managing water resources and provided grant funding or projects that protect communities from drought, protect and improve water quality, and reduce dependence on imported water. Several impressive regional projects have grown out of this effort.

Integrated Regional Watershed Management Plans

■ Southern California region eyes making its watershed drought-proof

The Santa Ana Watershed Project Authority covers a Southern California region projected to grow by 5-10 million residents in the next 50 years. The agency developed the Southern California Integrated Watershed Program as a series of projects that would be needed to achieve its goal of making the watershed drought-proof (by requiring no imported water during drought years). The intent is to complete this program within 10 years, providing that sufficient funding is acquired. The program includes a message to the planning community to "integrate watershed thinking into the everyday planning process." For more information www.sawpa.org

■ North Coast develops comprehensive plan to meet the region's shared water goals

The North Coast Integrated Regional Water Management Program is developing a comprehensive plan to increase cooperation between regional stakeholders in meeting shared water management goals. The program encourages projects that offer multiple benefits; are integrated with other regional efforts; and address water supply, water quality, wastewater, stormwater, flood control, watershed planning and aquatic habitat protection and restoration.

Improving coordination and collaboration among agencies responsible for managing water-related issues, including local land use agencies, is a key to achieving greater efficiencies. Additional benefits include the enhancement of public services and building of public support. The joint effort will also help to improve regional competitiveness for state and federal grant funding.

"The North Coast IRWMP's unique, multi-jurisdictional approach has brought together agencies dealing with water supply, water quality and land use planning," said Rohnert Park Councilmember Jake Mackenzie, the North Coast program's vice chair. "The process relies heavily on the leadership of local elected officials, as well as extensive critical review by an advisory board representing all seven counties. It has brought about an amazing amount of communication between the counties and water management agencies." For more information: www.northcoastirwmp.net

Implementation Principle 3 – Integrated solutions achieve multiple benefits

The best, multi-benefit and integrated strategies and projects should be identified and implemented before less integrated proposals, unless urgency demands otherwise.

Many of the strategies outlined in the Ahwahnee Water Principles have more than one benefit. Whenever possible, strategies should be chosen that provide two-fers, or better.

For example, putting up a levee will help prevent flooding, but it is not effective as an Ahwahnee Principle strategy that both prevents flooding and replenishes groundwater supplies.

The first community water principle suggests that we develop our cities in a compact manner so that automobile-generated urban runoff pollutants are minimized and open lands are preserved. This strategy is not only better for the community water supply, it also reduces air pollution and provides the walking and biking opportunities that help our populations incorporate healthy physical activity into their daily lives.

Ideally, planners and developers will apply all the Ahwahnee Water Principles, including natural drainage systems, the use of permeable surfaces, water-conserving landscapes, and water-conserving toilets. Integrating these measures achieves the maximum benefit.

Less expensive recycled water reduces threat of floods

Communities whose treated sewage empties into the Russian River – a Northern California river that is very prone to flooding – have accomplished two community benefits by using recycled water to irrigate landscapes. First, recycled water is less expensive than potable water, so the community and its residents save money. Second, by keeping wastewater out of the river, the threat of flooding during heavy periods of rain is reduced. While beefing up the area's levees may be effective in an emergency, diverting water from the area for productive uses also has more benefits in the long term.

Combining smart growth and low-impact development

The City of Ventura uses an infill-first strategy to avoid urban sprawl and minimize the impacts of development on local watersheds. Mixed-use, multi-story buildings replace small, dilapidated buildings currently surrounded by large parking lots. Underground parking lots, retail on street level and residences or offices on the upper floors now serve to reduce the development's impervious footprint. New developments are also conditioned with the goal of mimicking a site's pre-development hydrology. Design techniques manage runoff throughout the development. These structures retain, infiltrate, filter, store and evaporate, and detain runoff close to its source. Preferred conditions emphasize the use of grassy swales and depressed landscape areas. The result provides a range of benefits to the community and the environment. Landscaped areas help capture runoff and recharge groundwater, open space and agriculture remain intact, and pedestrian activity increases while fewer car trips are made. For more information: Vicki Musgrove, City of Ventura, (805) 652-4518

Inland Empire headquarters combines a variety of water- and energy-efficient measures

The Inland Empire Utilities Agency's LEED Platinum headquarters, located in Chino, integrates components of all of the community Ahwahnee Water Principles. The 22-acre Chino Creek Park, which abuts the agency's headquarters, serves as a regional community park dedicated to reestablishing the river's ecological function and native wildlife ecosystem.

The centerpiece is the restoration of approximately 16 acres of riparian habitat and wetlands, which will improve runoff water quality and benefit endangered species. Minimal grading during the construction of the building also helped preserve natural landscape features and promote natural drainage capacity. The two-acre headquarters site was planted with native, drought-tolerant trees and shrubs to create a natural setting for songbirds and other species.

Designed to manage a 25-year storm on-site, the project integrates sustainable stormwater solutions including permeable paving, bioretention basins, swales and disconnected roof spouts. Using these low-impact development techniques instead of conventional stormwater infrastructure netted a savings of more than $1.4 million in capital costs.

Combining several water-conservation strategies has reduced potable water demand by 73%. Native and drought-tolerant landscaping is irrigated with highly efficient 'smart' irrigation controllers using reclaimed graywater. Inside the building, dual-flush toilets and ultra-low-flow urinals use 100% recycled water from the agency's treatment facilities and use 27% less water than conventional toilets and urinals. Faucet aerators reduce limit flow to 0.5 gallons per minute.

Wastewater treated at the processing plant not only irrigates all landscaped areas, it will soon supply water to neighboring farms and industry where potable water is not needed. Water from the treatment process is also reclaimed and used for industry and for recharging regional aquifers.

Integrated groundwater program reduces Chino Basin's dependence on imported water

The Chino Basin Recycled Water Groundwater Project integrates stormwater management and water supply enhancement strategies to solve multiple problems. The project is part of the comprehensive Water Supply Enhancement Program sponsored by the Inland Empire Utilities Agency, Chino Basin Watermaster, Chino Basin Water Conservation District and the San Bernardino County Flood Control District.

It aims to reduce dependence on expensive imported water supplies and provide a local drought-proof supply of new water for the Chino Basin. The project will blend high-quality stormwater and recycled water to recharge the groundwater basin. It offsets the need for approximately 16,000 acre-feet of imported water, saving about $4 million per year in imported water purchases, and provides reliable water supplies to meet future growth without any significant increase in water and sewer rates. For more information: (909) 993-1600 or www.ieua.org/RecycledGroundwater.html

Implementation Principle 4 – Public involvement and stakeholder collaboration

From start to finish, projects and programs should involve the public, build relationships, and increase the sharing of and access to information. The participatory process should focus on ensuring that all residents have access to clean, reliable and affordable water for drinking and recreation.

Planning professionals, with their training and experience, are invaluable to the planning process. They cannot, however, be expected to foresee and understand every variable that may affect a project's outcome. On the other hand, residents may lack a thorough understanding of the principles and processes of planning, but they do bring valuable information and perspectives to the table.

The Public Policy Institute of California found that the quality of Urban Water Management Plans created by municipal water suppliers was significantly improved when the planning process included broad-based public participation and outreach. [50]

A proactive planning process, which includes a well-designed public involvement component, encourages individuals to consider the big-picture question of whether or not a proposed plan will enhance or damage the quality of life in the neighborhood and region in which it is built. It allows the community to make decisions based on shared goals and values.

Such a process allows participants to understand exactly what they are getting, assuring better public approval at build-out. Projects that develop strong public buy-in through participation are less likely to experience delays due to public opposition.

By involving residents in the planning process, a planning team can ensure that plans will have a long-lasting and stable constituency. Finally, a well-designed public process can renew the diminishing faith in government.

"Out of our effort in Pasadena to have thousands of residents in the community participate, came the seventh principle of the new general plan: Public participation will be a permanent part of achieving a greater city," according to Rick Cole, Pasadena's former mayor. "(Pasadena's) Seventh Principle has changed government, making it more open, responsive and effective. It has also raised the level of trust among residents – not trusting in City Hall, but trusting that they own City Hall."

New public participation tools

Many advances in technology are making it easier to involve the public in complex decisions, including computer simulation and geographic information systems.

Computer simulations allow the designer to produce a fairly accurate image of a proposed project. They help the public feel comfortable that they understand what they are going to get in the end.

Geographic Information Systems (GIS) allow complex spatial information to be displayed in the form of colored maps. They allow the users to envision various land use alternatives and understand their potential economic, social and environmental impacts. The result is a far more information decision-making process.

The Local Government Commission has also successfully employed a more low-tech approach called the Community Image Survey. This tool helps participants in a planning process understand their choices: Would they prefer a wide residential street or a narrow one? A mall or a town center? Contrasting photographs give participants the chance to choose what they would prefer. Results are tallied and the group's preferences are announced and incorporated in the proposed plan.

Implementation Principle 5 – Evaluate and adapt

Plans, programs and policies should be monitored and evaluated to determine if the expected results are achieved and to improve future practices.

Too often, plans end up on the shelf, programs are implemented and yet not completed, and policies don't achieve their intended outcomes. Monitoring and evaluation are important aspects of planning and implementation that ensure plans are effective, and that policies and programs are implemented and achieve results.

Because resources are required to evaluate the effects of public policy, this crucial task is not often undertaken. However, to assure that community policies are effective, evaluation is important. Evaluation also allows for adaptation so that policies and programs can evolve with the times.

Evaluation and monitoring should be based on good data and an open, ongoing dialogue between staff, elected leaders and the public. Natural resource managers call this "adaptive management," an approach that allows on-going refinement of policies so that decisions will reflect lessons learned and address current needs and issues.

Evaluation can take many forms. It can involve the collection of monitoring data, such as water quality indicators, to determine the effectiveness of a given program. It can also involve community surveys, public meetings and focus groups to gauge the public's view of a particular policy or program. The specific form and methodology depends on the situation, but it is always advisable to apply the resources needed to evaluate city or county programs.

A well-designed evaluation and monitoring program will:

- ➢ Establish measurable goals and objectives.
- ➢ Provide a framework for assessing project performance.

- ➢ Identify measures that can be used to monitor progress toward achieving project goals.
- ➢ Provide information to help improve current and future projects.
- ➢ Maximize the value of public expenditures to achieve environmental results.

Levels of evaluation

A project can be evaluated on a number of levels, and a range of evaluation models have been developed for different needs. One key of all of these strategies is that evaluation needs to be conducted from start to finish in any project.

It is best to start evaluation before a project is developed or implemented. Often called a "needs assessment," this form of evaluation allows decision-makers to see what problems need to be addressed before they try to solve them. This

seems obvious, but assessing the needs that a given policy solution is meant to address is rarely done.

Once it is clear what needs to be done and a policy solution is developed, goals can be set. Setting goals and milestones for meeting those goals is a vital step in developing and implementing effective policies and programs. Goals clarify the intention of the program, policy or project being implemented, and help the community know what to expect.

The next level of evaluation should occur throughout the development of the policy or program being implemented. Identifying baseline data – whether it is quantitative or qualitative – provides a gauge for measurement. As the policy is implemented, progress can be checked against baseline information to see if it is working.

This level of evaluation is critical because it allows us to identify problems and adapt solutions to stay on course to reaching the intended goal.

Finally, evaluation should occur at the conclusion of a project. Once the project, program or policy has been implemented or built, it is important to measure its effectiveness. This helps to determine whether the desired outcome was met and what lessons were learned that could be applied to future decisions.

It also allows elected leaders to gauge the return on investment – whether the benefits are worth the costs. This is hard to determine if measurable goals have not been set.

Southern California studies demonstrate cost and water savings from weather-based irrigation controllers

In 2001, the Irvine Ranch Water District, the Municipal Water District of Orange County and the Metropolitan Water District of Southern California completed a small-scale study of weather-based evapotranspiration (ET) irrigation controllers. Water demand and runoff from 40 controllers installed in Irvine's Westpark residential neighborhood were measured. Water savings averaged 37 gallons per day, or 7% of total household water use.

Based on these findings, the Irvine Ranch and Orange County districts partnered on another project, the Residential Runoff Reduction (R3) Study. The study had four primary purposes:

- Test the use of weather-based irrigation technology, also known as ET controllers, to manage irrigation water for residential homes and large landscape areas.
- Evaluate the effectiveness of a targeted education program on residential homeowners.
- Determine the correlation between proper water application in landscape irrigation and the quantity and quality of urban dry-season runoff.
- Gauge the acceptance of water management via the controller technology.

For more information: www.irwd.com/Conservation/water_conservation_research.php

Selected Resources

■ Principle 1: How we grow

The Local Government Commission (www.lgc.org) has developed several resources to help communities encourage compact growth through redevelopment, infill and other design strategies:

- ➢ Building Livable Communities: A Policymaker's Guide
- ➢ Street Design Guidelines for Healthy Neighborhoods
- ➢ Smart Growth Zoning Codes: A Resource Guide
- ➢ Compact Development Compact Disc: A Toolkit to Build Support for Higher Density
- ➢ Creating Great Neighborhoods: Density in Your Community

The Greenbelt Alliance, "Smarter Infill" (www.greenbelt.org)

U.S. EPA guides for using smart growth as a water management strategy (www.epa.gov/smartgrowth):

- ➢ Protecting Water Resources with Smart Growth
- ➢ Using Smart Growth Techniques as Stormwater Best Management Practices
- ➢ Protecting Water Resources with Higher Density Development
- ➢ National Management Measures to Control Nonpoint Source Pollution from Urban Areas
- ➢ Growing toward More Efficient Water Use: Linking Development, Infrastructure, and Drinking Water Policies

The EPA's model Phase II stormwater permit with language for smart growth strategies as stormwater best management practices: www.epa.gov/npdes/pubs/modpermit.pdf

■ Principle 2: Where we grow

The Center for Watershed Protection (www.cwp.org) hosts many articles and online tools.

The EPA's many resources on watershed protection practices include build-out tools (www.epa.gov/greenkit/2tools.htm) and source water protection plans (www.epa.gov/safewater/protect.html).

The Trust for Public Land published "Protecting the Source" on regional source water protection efforts: www.tpl.org/tier3_cd.cfm?content_item_id=1337&folder_id=195

Nonpoint Education for Municipal Officials (NEMO) has developed resources on "Natural Resource Based Planning:" www.nemonet.uconn.edu

■ Stormwater management

The EPA's National Menu of Stormwater Best Management Practices provides guidance for all six minimum control measures required for municipal (MS4) NPDES permits: http://cfpub.epa.gov/npdes/stormwater/menuofbmps

California's State Water Board (www.swrcb.ca.gov) is an important resource for current regulatory information and links to regional board web sites. Its stormwater program's Post Construction Runoff Control web page has links to low-impact development documents: www.swrcb.ca.gov/stormwtr/post_construction.html

The State Water Board's Nonpoint Source Pollution Control Program (www.swrcb.ca.gov/nps) has produced the California Nonpoint Source Encyclopedia: www.swrcb.ca.gov/nps/encyclopedia.html

■ Principles 3-4-5: Low-impact development

The California Stormwater Quality Association (www.casqa.org) assists the State Water Board and communities to implement the National Pollutant Discharge Elimination System (NPDES) stormwater mandates.

The LID Center has information and technical tools on the selection and use of low impact development best management practices: www.lowimpactdevelopment.org/epa03/biospec.htm

The Bay Area Stormwater Management Agencies Association developed "Start at the Source – Design Guidance Manual for Stormwater Quality Protection." For this and other documents: www.basmaa.org/documents/index.cfm?fuseaction=documents&doctypeID=3

■ Principle 4: Water-wise landscaping

StopWaste.Org has a good example of a guide – "Bay Friendly Landscape Guidelines" – that cities and counties can develop with local water suppliers to educate the public about water-efficient landscaping.

The California Urban Water Conservation Council works to integrate water conservation's best management practices into the planning and management of California's water resources. Its web site (www.cuwcc.org) contains technical resources and a standard set of best management practices that the Council regularly updates as new practices evolve.

The Department of Water Resources' Landscape Water Use web site includes California's Model Water Efficient Landscape Ordinance and the "Water Use Classifications of Landscape Species" guide for selecting plants and planting materials, and developing irrigation schedules for existing landscapes: www.owue.water.ca.gov/landscape/faq/faq.cfm

■ Principle 4: Trees and urban forestry

Many resources on tree selection and benefits are available:

- The Local Government Commission's fact sheet on "Livable Communities and Urban Forests" highlights the economic, public health and environmental benefits provided by trees: www.lgc.org/environment/trees.html
- American Forests' City GREEN software is a useful tool for analyzing cost savings: www.americanforests.org
- The U.S. Forest Service's Center for Urban Forest Research (CUFR) at UC Davis hosts a web site with up-to-date research and technical guidance: www.fs.fed.us/psw/programs/cufr
- The LGC and CUFR have developed tree guidelines for California's San Joaquin Valley, Southern Coast and the Inland Empire regions: www2.lgc.org/bookstore/list.cfm?categoryId=2

■ Principle 5: Minimize impervious surface cover

The Congress for New Urbanism and the Institute of Transportation Engineers have produced an arterial-street design guide to accommodate pedestrians: www.cnu.org

U.S. EPA's Parking Spaces/Community Spaces: www.epa.gov/smartgrowth

Portland's Metro developed a regional street design manual, specifying stream treatments, street width and associated water quality benefits: www.metro-region.org

Many of the resources listed in the low impact development section offer solutions for minimizing paved surfaces and using permeable alternatives.

The Local Government Commission (www.lgc.org/freepub) has developed several useful resources, including two related to reducing impervious surfaces through street design:

- Emergency Response and Narrow Streets
- New Thinking for a New Transportation Age

■ Principle 6: Graywater

Graywater Central web site (hosted by Oasis Designs): www.graywater.net

California's graywater standards: www.owue.water.ca.gov/docs/Revised_Graywater_Standards.pdf

City of Santa Monica's Graywater Guidelines: santa-monica.org/epd/residents/Water/graywater.htm

City of Malibu's Graywater Handbook: www.ci.malibu.ca.us/index.cfm?fuseaction=detailgroup&navid=274&cid=2949

WateReuse Association: www.watereuse.org/ca/index.html

■ Principle 7: Recycled Water

WateReuse Association model recycled water ordinance (California): www.watereuse.org/ca/modelwrord.htm

Department of Water Resources' 2005 Water Plan Update Sections 12–Matching Water Quality to Use and 16–Recycled Municipal Water: www.waterplan.water.ca.gov/cwpu2005/index.cfm#vol2

The State Water Board's Office of Water Recycling has important information about the use and development of recycled water as well as information on funding programs to help communities get recycling: www.swrcb.ca.gov/recycling

California Recycled Water Task Force documents and findings: www.owue.water.ca.gov/recycle/taskforce/taskforce.cfm

South Bay Water Recycling Rules and Regulations: www.sanjoseca.gov/sbwr/rulesandregulations.htmf

WateReuse.org: www.watereuse.org

WateReuse Technical Resources: www.watereuse.org/techres.htm

Department of Water Resources' Water Recycling and Desalination Program: www.owue.water.ca.gov/recycle/index.cfm

U.S. EPA Guidelines for Water Reuse: www.epa.gov/ORD/NRMRL/pubs/625r04108/625r04108.htm

West Basin Municipal Water District's Recycled Water User Manual: www.westbasin.org/pdf/Recycled_Water_User_Manual.pdf

■ Principle 8: Water conservation

The California Urban Water Conservation Council is a 350-plus member partnership of urban water agencies, public interest organizations and private entities working to increase efficient water use through integration of urban water efficiency Best Management Practices into the planning and management of California's water resources. These BMPS are regularly updated to reflect the most effective and current practices: www.cuwcc.org

Bewaterwise.com provides a range of water conservation information from the family of Southern California regional water agencies, including information on landscaping, native plant use and a watering index.

The Association of California Water Agencies has abundant information on current and pending legislation, and several resources on a range of water issues: www.acwa.com

The Department of Water Resources' Office of Water Use Efficiency provides support for the stewardship of California's water resources and energy-efficient use of water: www.owue.water.ca.gov

www.h2ouse.org provides a virtual home tour of a model water-saving home.

The Pacific Institute has research publications on the use and potential of urban water conservation: www.pacinst.org

■ Principle 9: Cleaning up groundwater supplies

The Water Education Foundation has resources on groundwater and many other topics: www.water-ed.org

The Department of Water Resources (www.water.ca.gov) has information on desalination in the 2005 Water Plan Update: www.waterplan.water.ca.gov/cwpu2005/#vol2

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Appendix A. The Model Water Element

Communities often have water-related policies interspersed throughout various elements of their General Plan because many aspects of the community's development and well-being are linked to water. Including a separate water element in the General Plan will help communities coordinate land use practices with the protection and management of water resources.

A stand-alone water element indicates a community's commitment to protecting local and regional water resources. Combining water-related policies and information in one place also allows for more integrated solutions and makes that information more accessible to the public. Once established, water element policies can be interspersed throughout other General Plan elements and planning documents.

Having water information and policies in a single place can also streamline compliance with requirements for National Pollutant Discharge Elimination System (NPDES) permits, SB 610 supply assessments and SB 221 supply verification.

This Model Water Element provides a policy framework to address the links between water and land use, and builds upon the watershed-based approach of the Ahwahnee Water Principles and the rest of this guidebook.

Watershed-based policy solutions provide the opportunity to build on the connectivity between the hydrological, ecological and social elements of watersheds. Surface water and groundwater are connected; water quality and supply are connected. Increasingly, our ability to grow as a community is a function of how the use and quality of water is managed. These policies, like the Ahwahnee Water Principles, strive to protect or restore the health and function of watersheds.

Sample Policy Language

The policy language provided in the Model Water Element has been taken from existing General Plans and other planning documents from around the state. Some local governments already have developed – or are developing – water elements for their General Plans. The State Office of Planning and Research also provides a chapter on developing a water element in its 2003 General Plan Guidelines (www.opr.ca.gov/publications/#pubs-G).

In addition to precise policy language, the Model Water Element provides "ideas for data and analysis" about integrating water into planning documents. It is also a helpful resource for communities that are not developing a stand-alone water element, but are looking to address water resource issues within their land use decision-making processes.

Each section of the Model Water Element also provides a set of policies and actions to support implementation. These are primarily program measures that address coordination and collaboration, public involvement, education and outreach, incentives, and monitoring and assessment.

These measures can make the difference between plans that are left on the shelf and those that are put into action. They build local and regional capacity to respond to needs with effective and adaptive policy solutions, and will help earn the trust and support of local residents and neighboring communities.

The following sample policies in the Model Water Element are arranged in three sections:

1. **Watershed protection and management**
2. **Protecting and improving water quality**
3. **Managing supply and demand of water resources**

While each section contains policies to address particular subjects, most water issues (and policies) are interrelated – and therefore difficult to limit to one category.

Watershed-based policy solutions take advantage of these linkages, and are especially effective when used in a coordinated manner to address several water quality, supply and flood management concerns. Similarly, policies intended to protect water quality can also augment water supplies, and help maintain essential watershed processes.

Watershed protection and management

These policies address how and where development occurs within a watershed. Many of them encourage community design that minimizes the impact and overall footprint of a community or a development project using smart growth techniques to create a compact, walkable design with mixed uses, a range of transportation options and a well-connected street network.

Other policies outlined in this appendix seek to protect natural areas and ecological systems to better maintain watershed processes. Taken together, these approaches are geared toward minimizing impacts from development and preserving watershed health to ensure sustainable water supplies, reduce flood risks and protect natural values.

Ideas for data and analysis

Compiling pertinent information about local natural resource conditions – such as floodplain maps, soils, local water bodies and important habitat or ecological areas – is typical in General Plans. This information is also useful for analyzing watershed conditions and can be supplemented with other data about local watersheds, including watershed boundaries, aquifer recharge areas, soil permeability and existing land uses related to the watershed(s).

In many places, local watershed councils or other groups have completed a watershed assessment that can provide a foundation for watershed-based policy solutions. These assessments typically include:

- A delineation of watershed boundaries.
- An inventory of important hydrologic features, such as rivers, lakes, groundwater basins, floodplains, riparian zones and estuaries.
- A discussion of the basic water resources and services that these features provide, including sufficient clean water, aquifer recharge, pollutant filtering and flood protection.
- A discussion of related resources such as fisheries, forestry, agriculture and recreation that are sustained by the watershed.

A water resource inventory should link water-related information to existing land uses and infrastructure. It should identify existing and projected water supply sources and analysis of projected demands. It may be possible to obtain this information from Urban Water Management Plans prepared by water suppliers. Local government can partner with water agencies and/or watershed groups to develop this information as part of a comprehensive watershed assessment that links data about water supply, demand, quality and land uses in the watershed.

Geographic Information Systems (GIS) is a very useful format for collecting and analyzing watershed data. GIS maps and data can be coordinated with other planning maps. Many communities already have many of the data layers needed, while others are available through state sources. A GIS's visual format allows planners, developers and the public to "see" the relationship between watershed features and functions, and zoned land uses. It also enables analysis of policy solutions using more sophisticated modeling techniques.

A. Compact development

These policies encourage compact development that mixes uses and supports multi-modal transportation options. Compact development can minimize the impact of new growth on water resources by reducing the community's footprint and allowing preservation of the watershed. Multi-modal transportation can reduce water pollution from cars, minimize the need for transportation-related impervious surfaces, and support compact development.

■ County of Los Angeles General Plan

Promote infill development to take full advantage of the existing capacities of public services and facilities.

Promote development of vacant infill sites at higher intensity, recycle underutilized sites, and advocate the cleanup, redevelopment and reuse of brownfield (potentially polluted) sites.

Promote compact, walkable, well-designed mixed-use development in and adjacent to employment and transit centers and commercial corridors to provide convenient access to jobs, shopping and services.

Promote ordinances that initiate transit-oriented development along bus and rail transit corridors.

Promote land use that encourages multi-modal transit nodes in unincorporated areas.

■ County of Riverside General Plan

Re-plan existing urban cores and specific plans for higher - density, compact development as appropriate to achieve the Riverside County Integrated Project Vision.

Concentrate growth near community centers that provide a mixture of commercial, employment, entertainment, recreation, civic and cultural uses to the greatest extent possible.

Concentrate growth near or within existing urban and suburban areas to maintain Riverside County's rural and open space character to the greatest extent possible.

Site development to capitalize upon multi-modal transportation opportunities and promote compatible land use arrangements that reduce reliance on cars.

■ City of Livermore Land Use Element

Encourage the clustering of development to minimize its overall footprint in areas of ecological sensitivity, such as hillsides, alkali springs, creek corridors and watersheds.

■ Santa Monica Sustainable City Plan

Implement land use and transportation planning and policies to create compact, mixed-use projects, forming urban villages designed to maximize affordable housing and encourage walking, bicycling and the use of existing and future public transit systems.

■ City of Chico General Plan

Maintain and enhance a strong pedestrian scale and orientation within the downtown through the design of buildings and streets.

■ City of Windsor General Plan

Streets, paths and greenways connect the town and constitute the most basic civic open space. Their design should consider the needs of pedestrians and bicyclists, as well as cars, and contribute positively to the town's identity.

■ City of San Diego General Plan

Design an interconnected street network within and between communities, which includes pedestrian and bicycle access, while minimizing landform impacts.

B. Natural resource protection and watershed management

Protection of important natural areas, which is critical to watershed protection, is facilitated by compact land-use patterns that compact development policies create, but it also requires policies that ensure key areas are sufficiently protected and managed. This includes policies for wetland and stream protection, buffer and setback standards, and the acquisition and protection of open space to serve these purposes.

■ City of Thousand Oaks

Protect remaining floodplains to help retain stormwater runoff from tributary watersheds and reduce the potential for periodic flooding within downstream reaches of the Arroyo Conejo and Calleguas Creek.

■ City of Arcata General Plan

Ecological systems and natural processes are not to be disrupted by land use activities to a significant degree (e.g., a culvert or other drainage device that blocks fish passage).

An "adaptive management" approach shall be used to maintain ecological and biological integrity, including monitoring the status of ecological systems in the city and adjusting City implementation of the plan, to more closely approximate the conditions provided in the planning area's least-disturbed natural ecosystems.

Streamside Protection Areas (SPA) are established along both sides of the streams identified on the City Watercourse Map. These areas shall remain in a natural state to protect the streams' ecosystems and their associated riparian habitat areas. The SPA shall include:

1 In areas where existing development, as defined in the Land Use Code, is adjacent to the stream, the SPA shall be not less than 25 feet outward on both sides of the stream, measured from the top of bank.

2 In all other locations within the city, the SPA shall be not less than 100 feet outward on both sides of the stream, measured from the top of bank.

3 In locations within the city having significant areas of riparian vegetation exceeding 100 feet in width measured from the top of bank, the SPA shall be expanded to encompass all of the riparian vegetation, except in no case shall the SPA exceed 250 feet in width from the top of bank on either side of the stream.

Maintenance of streams as natural drainage systems: Arcata's creeks carry a significant amount of the city's stormwater. Drainage controls shall be enforced through implementation of the Drainage Master Plan, to protect water quality, and minimize erosion, sedimentation and flood impacts to city creeks. A comprehensive stream maintenance program shall be prepared to augment stormwater utility rehabilitation projects designed to improve flow capacity, minimize channel erosion, and enhance riparian habitat.

■ City of San Luis Obispo

Wetlands and associated wetland buffers are to be preserved as open space, and maintained in a natural state to protect the community's water quality, wildlife diversity, aesthetic values and recreation opportunities.

Wetlands are to be protected from development impacts by requiring a wetland buffer around these areas. The wetland buffer should: (1) be located between the wetland and proposed, existing or potential development; (2) be of a sufficient width and size to protect the species most sensitive to development disturbances and to compensate for project impacts as determined by a qualified biologist during the initial planning phase of development; and (3) be designed to complement the habitat value of the wetland resource.

■ County of Los Angeles General Plan

The goal is effective management of watersheds, which balances growth and development with resource conservation, flood hazard mitigation, habitat preservation and water quality protection.

Support the preparation and implementation of Watershed and River Master Plans to enhance aquatic habitats, promote recreational opportunities, and restore natural features.

Conserve, restore and monitor wetlands and other riparian habitats to preserve the natural hydrologic conditions and associated biotic habitats that support the wetland function.

Support the preservation, restoration and strategic acquisition of open space to preserve natural streams and drainage channels, which are necessary for the healthy function of watersheds.

■ City of San Diego General Plan

Apply the appropriate zoning and environmentally sensitive lands regulations to limit development of floodplains, wetlands, steep hillsides, canyons and coastal and waterfront lands.

■ City of Ventura General Plan

Require that sensitive wetland and coastal areas be preserved as undeveloped open space wherever feasible and that future developments result in no net loss of wetlands or "natural" coastal areas.

■ City of Livermore General Plan

Conserve the value and function of Livermore's open space as a biological resource.

Require appropriate setbacks, to be determined in coordination with resource agencies, LARPD, EBRPD and other responsible agencies, adjacent to natural streams to provide adequate buffer areas that ensure the protection of plant and animal communities.

■ City of Santa Cruz General Plan

Minimize the impact of development upon riparian and wetland areas through setback requirements of at least 100 feet from the center of a watercourse for riparian areas and 100 feet from a wetland. Include all riparian vegetation within the setback requirements, even if it extends more than 100 feet from the watercourse or if there is no defined watercourse present.

■ City of Fresno General Plan

The city will continue to support the concept of a regional river parkway system in the river bottom, in coordination with Fresno County, Madera County, public interest groups, property owners and the State of California.

■ City of Grass Valley General Plan

Establish open space easements along riparian corridors.

C. Vegetation protection and management

These policies address the use and protection of trees or natural vegetation for maintaining watershed processes, and the management of landscaping and urban forests in developed parts of the watershed. These policies overlap with those in other sections, including policies about construction practices and water quality.

■ City of Chico General Plan

Protect and enhance the urban forest that reinforces the image and identity of the community and its older neighborhoods.

■ City of San Luis Obispo Draft General Plan

Protect, preserve and create the conditions that will promote the preservation of significant trees and other vegetation, particularly native California species.

■ City of Livermore General Plan

Conserve Livermore's native trees and vegetation, which are important biological resources within the planning area.

Require new developments to incorporate native vegetation into their landscape plans, and prohibit the use of invasive non-native plant species. Propagules (seeds or plants) of native plants shall be from native sources.

■ City of Woodland General Plan

The City shall require that new development preserve natural woodlands to the maximum extent possible.

D. Sustainable site preparation practices

The site preparation phases of development can be among the most detrimental to water resources. It is also during these phases that on-site environmental features – soils, topography and vegetation – can either be protected for their value as "green infrastructure" or degraded. The dredging and filling of wetlands and streams, and intensive grading and vegetation removal, alters site hydrology and creates downstream impacts on water resources.

The following policies are designed to minimize the impacts of site preparation practices and promote the protection of on-site environmental features as natural water resource infrastructure for their benefit to the new development.

■ City of Livermore General Plan

Grading and excavation in woodland areas shall avoid disturbances to subsurface soil, water or rooting patterns for natural vegetation.

The use of "green construction" and land development techniques shall be encouraged as a means to reduce the environmental impacts of construction activity.

Encourage all additions and new development to follow green building practices for design, construction, and operation and to incorporate as many LEED prerequisites and credits as feasible.

■ City of Rohnert Park General Plan

Require new construction to utilize site preparation, grading, and foundation designs for erosion control to prevent sedimentation and contamination of streams.

■ City of Malibu Local Coastal Program Land Use Plan

New development shall protect the absorption, purifying and retentive functions of natural systems that exist on the site. Where feasible, drainage plans shall be designed to complement and utilize existing drainage patterns and systems, conveying drainage from the developed area of the site in a non-erosive manner. Disturbed or degraded natural drainage systems shall be restored, where feasible, except where there are geologic or public safety concerns.

■ City of Santa Cruz General Plan

Require site design and erosion control measures in areas subject to erosion hazards or adjacent to streams and wetland areas to minimize grading activities and vegetation removal.

E. Policies and programs to support implementation

■ County of Sonoma Draft General Plan – Water Resources Element

Correlate the quality and quantity of water captured, stored and contained within each unique watershed to the needs of beneficial water uses by all county residents, local industry, agriculture and the natural environment.

Encourage and support research on and monitoring of local groundwater conditions, aquifer recharge, watersheds and streams.

Where a problem has been identified, promote and seek funding to evaluate and remediate it through a watershed management approach.

Work with the Regional Water Quality Control Boards, watershed groups and stakeholders in the collection, evaluation and use of watershed-specific water resource information.

■ Riverside County General Plan

Allow techniques, such as incentives, transfer of development credit programs or other mechanisms, to achieve more efficient use of land.

Allow development clustering and/or density transfers in order to preserve open space, natural resources and/or biologically sensitive resources.

■ County of Los Angeles General Plan

Promote improved inter-jurisdictional coordination of land use and transportation policy matters between the county, cities, adjacent counties, special districts and regional and subregional agencies.

■ County of Inyo General Plan

Work with federal and state agencies, local districts, utilities (LADWP) and Native American tribes to ensure that the County and the public are involved early in any planning process and that routine feedback and public input is requested.

Water quality

Land use development significantly impacts water quality. These water quality policies aim to mitigate development impacts and protect and improve the quality of water for domestic, environmental, agricultural and other uses.

The growing need for high-quality drinking water supplies, new water quality regulations, public health risks and environmental values are just a few of the reasons to institute local policies to ensure water quality.

Full-scale water quality protection is linked to the watershed protection policies in the preceding section as well as the water supply policies in the subsequent section.

Ideas for data and analysis

Any existing water-quality monitoring data from water purveyors, watershed councils or government agencies can be included and may be useful to provide baselines for evaluating the effectiveness of programs and policies.

Specific local water quality impairments (TMDLS) and threats, such as specific discharge points, should also be identified and related to the supply sources they might impact (for example, MTBE as a threat to groundwater supplies).

An increasing number of communities are analyzing development patterns to manage stormwater quality by mapping impervious surface areas and using modeling to project water-quality impacts likely to occur from different development decisions.

A. Stormwater management

Municipal stormwater permits under the National Pollutant Discharge Elimination System (NPDES) program require communities to address the impacts of development on stormwater quality.

The planning and design stages of development offer some of the best opportunities for incorporating effective stormwater best management practices. Regulated communities need to develop Stormwater Management Programs that include measures for addressing the post-development impacts of stormwater runoff.

Addressing stormwater in the General Plan and other planning documents also assures that land use planning and stormwater management efforts are coordinated and not contradictory.

Stormwater management requires regional and site-scale policies. The following policies are therefore linked to watershed protection policies as well as water-supply policies for treating stormwater as a local supply source.

■ Santa Monica Municipal Code

The following urban runoff reduction requirements shall apply to all persons submitting applications for new development within the city.

When an application is submitted for a new development project, the applicant shall be required to submit an Urban Runoff Mitigation Plan to the Department of Environmental and Public Works Management.

In developing an Urban Runoff Mitigation Plan, the applicant shall infiltrate or treat projected runoff for the new development by an amount equal to or greater than the volume of runoff produced from a storm event through the incorporation of design elements.

The design elements used by an applicant may, but are not required to, include the following:

1) Maximize permeable areas to allow more percolation of runoff into the ground through such means as:

   a) Biofilters;

   b) Green strips;

   c) Swales.

The use of permeable materials in lieu of or to replace hardscapes will increase the amount of runoff seepage into the ground.

2) Maximize the amount of runoff directed to permeable areas and/or maximize stormwater storage for reuse or infiltration by such means as:

   a) Orienting roof runoff towards permeable surfaces, drywells, French drains or other structural best management practices (BMPs) rather than directly to driveways or non-permeable surfaces so that runoff will penetrate into the ground instead of flowing off-site.

   b) Grading the site to divert flow to permeable areas.

   c) Using cisterns, retention structures or green rooftops to store precipitation or runoff for reuse.

   d) Removing or designing curbs, berms or the like so as to avoid isolation of permeable or landscaped areas.

3) Remove pollutants through the installation of treatment control BMPs.

4) For purposes of compliance with this [Santa Monica] Section, pools, hot tubs and spas shall be considered impermeable surfaces.

5) The Urban Runoff Mitigation Plan must also include the applicant's plan for the maintenance of all BMP's requiring ongoing maintenance.

6) All Urban Runoff Mitigation Plans must include the applicant's signed statement accepting responsibility for all structural and treatment control BMP maintenance. The transfer of property subject to an Urban Runoff Mitigation Plan must include as a written condition to the transfer that the transferee assumes full responsibility for maintenance of any structural, and/or source or treatment control BMPs.

■ City of San Luis Obispo General Plan

The City will employ the best available practices for pollution avoidance and control, and will encourage others to do so. "Best available practices" means behavior and technologies that result in the highest water quality, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies.

■ City of Ventura General Plan

Require new developments to incorporate stormwater treatment practices that allow percolation to the underlying aquifer and minimize offsite surface runoff using methods such as pervious paving material for parking and other paved areas to facilitate rainwater percolation and retention/detention basins that limit runoff to pre-development levels.

Require stormwater treatment measures within new development to reduce the amount of urban pollutant runoff in the Ventura and Santa Clara Rivers and other watercourses.

Use natural features such as bioswales, wildlife ponds and wetlands for flood control and water quality treatment when feasible.

■ City of Santa Clara General Plan

Maximize water retention and reduce the quantity of water runoff.

■ City of San Jose General Plan

To preserve and enhance the scenic and aesthetic qualities of rural areas located within the City's Sphere of Influence, the design and construction of public and private right-of-way improvements should conform to the following guidelines:

1) Streets should be designed in consideration of the natural topography and the landscape. Divided streets and grade separations may be used.

2) Concrete sidewalks, curbs and gutters should be constructed only when required by the topography. Crushed gravel walks and vegetation-lined swales are encouraged.

■ City of Santa Cruz General Plan

Design and site development to minimize lot coverage and impervious surfaces, limit post development runoff to pre-development volumes, and incorporate storm drainage facilities that reduce urban runoff pollutants to the maximum extent possible.

Where feasible, direct runoff from rooftops and other areas to drywells.

Require low-flow-velocity, vegetated open channels, area drains incorporating grease and sediment traps, groundwater recharge facilities and detention ponds directly connected to impervious areas.

■ City of Livermore General Plan

Revise the Subdivision Ordinance and other Municipal Code sections to reduce the creation of impermeable surfaces in new development. Examples of strategies to reach this goal might include requiring the use of vegetative swales (biofilters) and detention/infiltration basins.

Existing property owners shall be encouraged, or required as appropriate, to reduce stormwater runoff by reducing impermeable surfaces.

■ City of Palm Desert General Plan

For existing landscapes, runoff, low-head drainage, overspray or other similar conditions where water flows onto adjacent property, nonirrigated areas, walks, roadways or structures shall be prohibited.

■ City of Rohnert Park General Plan

All specific plans shall address hydrology and drainage for their respective areas, as well as practices to be incorporated as part of individual development projects.

As part of the building permit process, require all development projects to comply with hydrology and drainage policies incorporated in the applicable Specific Plans.

The City shall review and approve the proposed drainage system requirements prior to construction on the project site.

B. Groundwater quality

These policies are used to ensure the quality of groundwater resources. This can involve protection of groundwater recharge areas and wellheads from point and nonpoint sources of pollution, as well as the treatment of contaminated groundwater supplies.

These policies have clear links to groundwater policies in the following section on water supply and demand. They are also related to watershed protection policies that protect natural recharge areas and to water quality policies because of the connections between surface water and groundwater systems.

- City of Santa Cruz General Plan

Identify and protect groundwater recharge areas to maintain suitable groundwater levels and protect groundwater quality for existing and potential municipal water sources.

Ensure that new development or land uses near surface water and groundwater recharge areas do not degrade water quality.

- County of Shasta General Plan

Institute effective measures to protect groundwater quality from potential adverse effects of increased pumping or potential sources of contamination.

- Sonoma County Draft General Plan – Water Resources Element

Encourage pretreatment and waste load minimization of commercial and industrial wastes prior to their connection to sewer systems.

Consider on-site wastewater management districts in areas with septic problems.

Actively pursue the abatement of failing septic systems that have been demonstrated as causing a health/safety hazard.

C. Policies and programs to support implementation

- City of Livermore General Plan

Encourage coordination between land use planning, site design and stormwater pollution control.

- City of Santa Clara General Plan

Participate on a regional basis in a nonpoint source control program to reduce pollutants in stormwater runoff.

Managing supply and demand of water resources

These policies are intended to ensure the reliability and most-efficient use of water supplies. The amount and availability of water supplies is a function of how much there is (supply) and how it is used (demand).

Water management has long been focused on increasing the supply side of this equation, but our ability to develop new supply options to meet future needs will largely depend on shifting focus to reduce demand on existing supplies as well. Policies to increase efficiency through indoor and outdoor water conservation, recycling of municipal wastewater, reuse of household graywater, and capture and/or infiltration of stormwater are combined with those to manage water resources for maximum reliability. Reliability is achieved through policies that develop a portfolio of sustainable water supply options to meet local and regional needs.

Ideas for data and analysis

Analysis can build on information from any watershed assessment. Otherwise, collecting land-use based supply and demand data is recommended. Water supply and demand projections should cover wet, normal, dry and multiple-dry years.

Opportunities for demand reduction through conservation, recycling and reuse and other measures should be included.

Urban Water Management Plans provide an important reference and would ideally be cross-referenced in the General Plan to facilitate coordination with water suppliers and compliance with SB 610 water assessments and SB 221 water supply verification.

A. Water supply planning

These policies correspond to water supply and demand planning processes and actions. Some are directly related to the new "show me the water" laws.

- City of Cathedral City General Plan

One goal of the General Plan is a sustainable, long-term supply of clean and healthful domestic water available for existing residents and future growth.

- County of Los Angeles General Plan

Proposed large-scale development shall provide for a guaranteed supply of water to serve the project, consistent with state regulations.

■ Santa Clara County General Plan

Countywide land use and growth management planning should be coordinated with overall water supply planning in order to maximize dependability of long-term water supply resources.

■ City of Fresno General Plan

Maintain a comprehensive, long-range water resource management plan that provides for appropriate management of all sources of water available to the planning area and ensures that sufficient and sustainable water supplies of good quality will be economically available to accommodate existing and planned urban development.

■ City of San Diego General Plan

Prepare, implement and maintain long-term, comprehensive water supply plans and options in cooperation with the appropriate state and federal agencies, regional authorities, water utilities and local governments.

B. Water-use efficiency

These policies are intended to increase water-use efficiency through indoor and outdoor conservation measures. They support technologies and practices that minimize the day-to-day water use to decrease demand.

■ City of San Luis Obispo Draft General Plan

Maximize the implementation of water conservation measures as a cost-effective way to manage water demands and reduce the dependence on imported water.

In planning for urban water needs, the City will adopt and strive for the most efficient available practices. The City will encourage other agencies to follow this policy. "The most efficient available practices" means behavior and devices that use the least water for a desired outcome, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies.

■ County of Riverside General Plan

Incorporate water conservation techniques, such as groundwater recharge basins, use of porous pavement, drought-tolerant landscaping and water recycling, as appropriate.

Require that new development utilize drought-tolerant landscaping and incorporate adequate drought-conscious irrigation systems.

■ City of Santa Cruz General Plan

Promote water conservation to reduce future demand through the implementation of the Urban Water Management Plan.

■ City of Ventura General Plan

Require low-flow fixtures, leak repair and drought-tolerant landscaping (native species, if possible), plus emerging water conservation techniques, such as reclamation, as they become available.

Demonstrate low water-use techniques at community gardens and city-owned facilities.

■ City of Livermore General Plan

The City shall adopt a series of Best Management Practices for water conservation measures that will be mandatory in new development and strongly encouraged in existing developments.

Projects deemed appropriate for the use of recycled water shall be required to use recycled water, when available, for uses outlined in the State Water Code.

Require compliance with the State and City's mandatory water efficient landscape ordinance.

Develop and provide incentives for existing and future customers to reduce water consumption.

Develop and institute a City-sponsored program of mandatory water conservation measures for new development. Develop a program for existing developments based on a voluntary participation with incentives to achieve specific targets for water conservation, including such elements as:

➢ Ultra-low flush toilets;

➢ Plumbing retrofits;

➢ Leak detection;

➢ Efficiency standards for water-using appliances and irrigation devices, and industrial and commercial processes;

➢ Graywater use;

➢ Swimming pool and spa conservation measures such as covers to reduce evaporation;

➢ Xeriscape landscape design standards.

■ County of Sonoma Draft General Plan – Water Resources Element

Increase the role of conservation and safe, beneficial reuse in meeting water supply needs of both urban and rural users.

Use water effectively and reduce water demand by:

➢ Requiring water conserving design and equipment in new construction.

➢ Encouraging water conserving landscaping and other conservation measures.

➢ Encouraging retrofitting with water-conserving devices.

➢ Designing wastewater systems to minimize inflow and infiltration to the extent economically feasible.

➢ Limiting impervious surfaces to minimize runoff.

■ City of Cathedral City General Plan

Require the use of water-conserving appliances and fixtures in all new development, as mandated by state law.

■ City of Santa Cruz General Plan

Develop and implement a systemwide program to convert existing toilets to Ultra Low Flush (ULF) models; analyze how best to apply the savings realized from this conversion; and investigate other options and incentives for retrofitting other old water-inefficient fixtures.

Enforce the New Construction/Ultra-Low-Flush-Toilet Water Conservation Ordinance and periodically review this ordinance to determine if additional fixtures should be added.

Efficient water use in landscaping:

1) Choose plants that are suitable for the climate and their intended function, with an emphasis on native and drought-tolerant plants.

2) Prepare soils for water penetration and retention.

3) Design and operate suitable and efficient irrigation systems.

4) The City will encourage drought-tolerant landscaping, vegetable gardens and fruit trees in lieu of large expanses of lawn or other more water-demanding plantings.

Landscape maintenance: Landscaped areas will be properly designed for efficient water use, and shall be properly installed and maintained, including the upkeep and replacement of low-flow irrigation fixtures and equipment.

■ City of Palm Desert General Plan

If a project's water bills indicate that the landscaped areas are using less than or equal to the maximum water allowance for those landscaped areas of one or more acres, an audit shall not be required by the water purveyor.

■ City of Palm Desert Landscape Program

Develop and adopt a landscape ordinance for new and rehabilitated landscaping with specific irrigation designs, planting and maintenance plans emphasizing unity, aesthetics, water efficiency and stressing the planting of a diversity of native, drought-resistant species.

➢ Compose a list of recommended landscaping species that are native, drought tolerant and have forage value for wildlife.

➢ Compose a list of noxious and invasive species and educate the public about their disadvantages.

➢ Make drought-resistant trees and native species apart of the Master Street Tree List.

Each landscape construction documentation package shall include a cover sheet, referred to as the water conservation concept statement, similar to the following example. It serves as a checklist to verify that the elements of the landscape documentation package have been completed and as a narrative summary of the project. This applies to:

a) All new and rehabilitated landscaping for public agency projects and private development projects including, but not limited to, industrial, commercial and recreational projects;

b) Developer-installed landscaping in single-family and multi-family projects.

C. Groundwater supplies

The following policies address the use and management of groundwater supplies. Groundwater systems are connected to surface waters and are vital components of watersheds. Overdraft of groundwater affects base-flow to local water bodies as well as the health of terrestrial and riparian ecosystems. Thus, these policies are closely related to watershed protection and water-quality policies about surface water and groundwater systems.

■ City of Santa Cruz General Plan

Identify and protect groundwater recharge areas to maintain suitable groundwater levels and to protect groundwater quality for existing and potential municipal water sources.

■ County of Shasta General Plan

Institute effective measures to protect groundwater quality from potential adverse effects of increased pumping or potential sources of contamination.

■ City of San Jose General Plan

The City should not permit urban development to occur in areas not served by a sanitary sewer system.

The City should protect groundwater recharge areas, particularly creeks and riparian corridors.

■ County of Sonoma Draft General Plan – Water Resources Element

Manage groundwater as a valuable and limited shared resource.

Encourage new groundwater recharge opportunities and protect existing groundwater recharge areas.

Work with public water suppliers to decrease reliance on groundwater and prevent diminishment of groundwater supplies.

Conserve, enhance and manage groundwater resources on a sustainable basis, which assures sufficient amounts of clean water required for future generations, the uses allowed by the General Plan, and the natural environment.

Revise procedures for proving adequate groundwater for discretionary projects by adding criteria for study boundaries, review procedures and required findings that the area's groundwater supplies and surface water flows will not be adversely impacted by the project and the cumulative amount of development allowed in the area and will not cause or exacerbate groundwater overdraft, land subsidence or saltwater intrusion.

Procedures for proving adequate groundwater for discretionary projects should be flexible enough to consider the expense of such study in relation to the size of the discretionary project.

Require that discretionary projects, to the maximum extent practicable, maintain or increase the site's pre-development absorption of runoff to recharge groundwater. Implementation would include standards which could regulate impervious surfaces, vary by project type, land use, soils and area characteristics, and provide for water impoundments, protecting and planting vegetation, cisterns and other measures to increase runoff retention and groundwater recharge.

Monitor groundwater conditions, require descriptive information for well permits, and analyze, map and publicize the data gathered.

■ County of Los Angeles General Plan

Protect natural groundwater recharge areas and artificial spreading grounds and increase the storage of water underground for future use.

■ City of Woodland General Plan

The City shall cooperate with other jurisdictions in jointly studying the potential for using surface water sources to balance the groundwater supply so as to protect against aquifer overdrafts and water quality degradation.

D. Recycling and reuse of water supplies

These policies support the reuse of recycled wastewater and household graywater. Plan language can advance the use of recycled water by supporting the development or expansion of water recycling facilities, by ensuring policies are in place so that proposed projects are outfitted with purple pipe, and by requiring the use of recycled water for appropriate applications wherever feasible.

Graywater policies should support the inclusion of graywater systems in new development and simplify local permitting for installation and use of those systems.

■ City of Chino General Plan

It is the policy of the City that recycled water be used for any purposes approved for recycled water use, when it is economically, technically and institutionally feasible. Recycled water shall be the primary source of supply for commercial and industrial uses, whenever available and/or feasible. Use of potable water for commercial and industrial uses shall be contrary to city policy; shall not be considered the most beneficial use of a natural resource; and shall be avoided to the maximum extent possible.

■ City of Santa Clara General Plan

Maximize the use of reclaimed water for construction, maintenance and irrigation, and encourage its use elsewhere, as appropriate.

■ City of Livermore General Plan

Require all new industrial, commercial and office development within pressure Zone 1 to use reclaimed water for landscape irrigation, where available.

■ City of Palm Desert General Plan

Coordinate with the Coachella Valley Water District on the continued use and future expansion of tertiary-treated wastewater treatment and distribution facilities to serve existing and new development projects in the city.

■ County of Sonoma Draft General Plan – Water Resources Element

Encourage graywater systems, roof catchment of rainwater and other methods of reusing water and minimizing the need to use groundwater.

■ County of Los Angeles General Plan

Encourage the production and use of reclaimed water and stormwater runoff to provide water for irrigation, groundwater recharge, saltwater intrusion barriers or other beneficial uses.

■ City of San Luis Obispo General Plan

Facilitate use of tertiary-treated water and seek to legalize use of graywater for non-potable household purposes.

E. Stormwater supplies

New practices are allowing communities to treat stormwater as a resource rather than a nuisance. Practices that allow the capture and reuse of stormwater on-site for landscaping, as well as those that encourage stormwater infiltration to recharge groundwater systems can help comply with water quality regulations for stormwater management – and also enhance local supplies. General Plans can advance the development of stormwater as a water supply through policies that encourage or require the capture and/or infiltration of stormwater.

■ County of Sonoma Draft General Plan – Water Resources Element

Conserve and recognize stormwater as a valuable resource.

■ City of Santa Cruz General Plan

Investigate the feasibility of using stormwater runoff, if all water quality measures are in place, for irrigation and groundwater recharge.

■ Santa Monica Municipal Code

Maximize the amount of runoff directed to permeable areas and/or maximize stormwater storage for reuse or infiltration by such means as:

➢ Using cisterns, retention structures or green rooftops to store precipitation or runoff for reuse.

➢ Grading the site to divert flow to permeable areas.

➢ Orienting roof runoff towards permeable surfaces, drywells, French drains or other structural BMPs rather than directly to driveways or non-permeable surfaces so that runoff will penetrate into the ground instead of flowing off-site.

F. Policies and programs to support implementation

■ County of Inyo General Plan

Goal: To ensure planning decisions are reached in a collaborative environment and to provide opportunities of early and consistent input by Inyo County and its citizens into the planning processes of other agencies, districts and utilities.

■ County of Sonoma Draft General Plan – Water Resources Element

Work with public water suppliers in assessments of the sustainable yield of surface water, groundwater, recycled water and conserved water. This work should include the exploration of potentially feasible alternative water supplies. Surface and groundwater supplies must remain sustainable and not exceed safe yields.

Support inter-regional planning efforts by the public water suppliers, their contractors and involved stakeholders in Sonoma County to determine the preferred combination of sources to meet projected demand.

Initiate an educational program to inform residents, agriculture, businesses and other groundwater users of best management practices in the areas of efficient water use, water conservation and increasing groundwater recharge. Implementation would include preparation and distribution of educational materials and public workshops.

■ City of Fresno General Plan

Maintain and expand cooperative multi-agency planning and programs for water conservation.

■ City of San Diego General Plan 2005

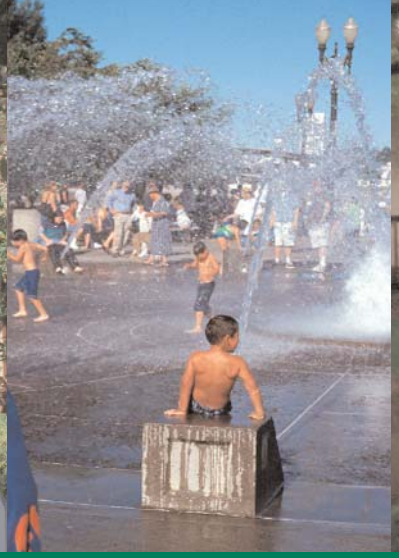
Implement conservation incentive programs that increase water-use efficiency and reduce urban runoff:

➢ Develop a response plan to assist citizens in reducing water use during periods of water shortages and emergencies.

➢ Encourage local water agencies to use state-mandated powers to enforce conservation measures that eliminate or penalize wasteful uses of water.

➢ Explore alternative conservation measures and technology as they become available.

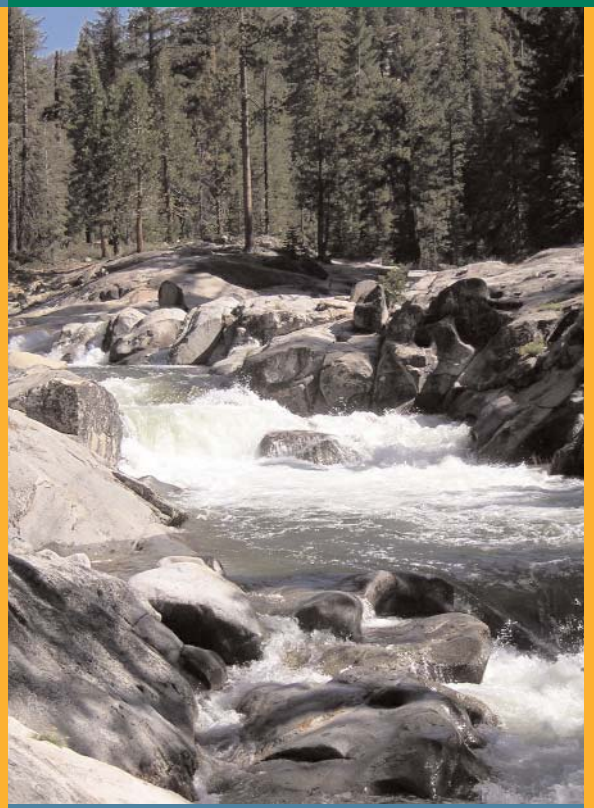
➢ Develop and expand water-efficient landscaping to include urban forestry, urban vegetation, and demonstration projects.



The Ahwahnee Water Principles

Local Government Commission

The Local Government Commission is an award-winning, 26 year-old nonprofit membership organization of forward-thinking, locally elected officials, city and county staff, and other interested individuals. The LGC helps local officials address the problems facing their communities and maximize their civic, environmental and economic resources.

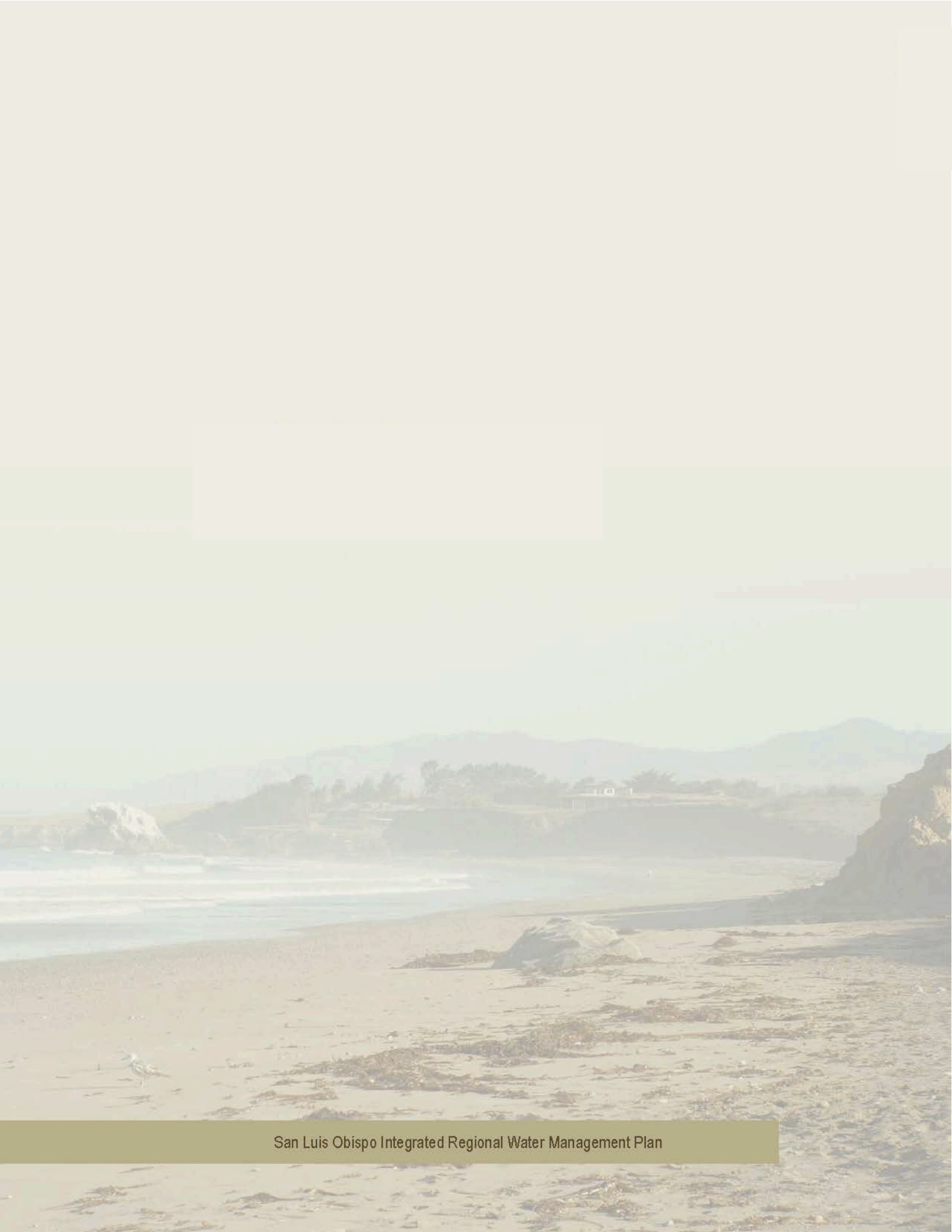


In 2004, the Local Government Commission set out to identify effective, least-cost economically and politically viable options for sustainable water resources management at the local level.

The LGC invited respected water resource policy, management and planning professionals – with experience at the federal, state and local levels – to craft a set of land use principles which would provide guidance to local officials and communities concerned about sustaining future water supplies.

The resulting Ahwahnee Water Principles provide a practical blueprint for sustainable land-use practices that can improve the reliability and quality of water resources and reduce some of the financial liabilities that new development places on local government.

These principles are practical actions that cities and counties can take as good stewards of California's water resources by ensuring that new development and redevelopment minimize the risks and impacts of stormwater runoff, ground and surface water contamination and flooding.



San Luis Obispo Integrated Regional Water Management Plan

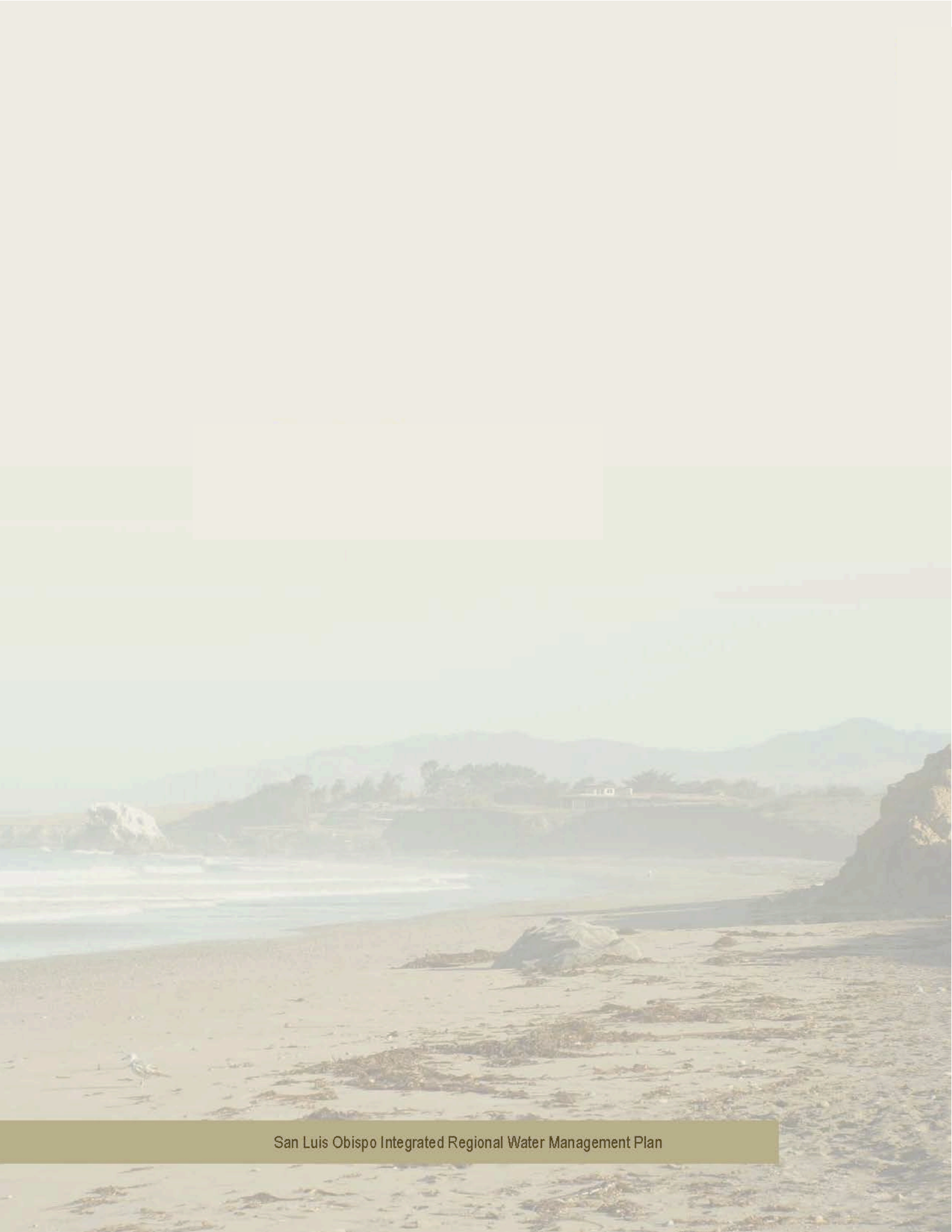
Appendix U.

Public Comments and Responses

Appendix U – Public Comments and Responses

Responses to comments provided below have been reduced to only those which are relevant to the IRWM Plan's purpose and content in meeting state guideline requirements. All comments and suggested edits are compiled in **Appendix I**.

Public Comments and Questions	Summary Response	
Section D Water Supply, Demand, and Water Budget		
The San Simeon recycled water treatment plant is complete and running. The proposed grant project will allow for building a distribution system for that product water.	The plan acknowledges the trucking of reuse water in Table D-5. As per the Draft San Luis Obispo County Regional Recycled Water Strategic Plan (RRWSP), the district installed a 36,000 gpd tertiary filtration system in 2013. Current reuse is via hauling by truck for irrigation of commercial properties. The district has plans to construct a distribution system in phases as funds become available.	
The urban values are inconsistent with current conservation plan policies and our 2010 Urban Water Management Plan.	In cases where inconsistencies exist with adopted 2010 UWMPs, the reason may be the result of one or more of the following: adding system losses, using the MWR for 2035 and interpolating from 2030 to 2035, and/or additional supplies will likely become available through planned projects such as reuse and desal.	
Section E Goals and Objectives		
How does the task of updating the list of Sub-Region Priorities take place?	Sub-Region priorities address the IRWM Plan's Goals and Objectives, with focus on specific water resources issues in the three Sub-Regions identified in the Plan. Section J – Plan Performance and Monitoring addresses the task of meeting with local stakeholders to update the priorities as current events change, and refocusing of the needed projects/programs takes place.	
Section I Plan Benefits and Impacts		
A summary format is preferred in Section I.3 to discuss Other Resources at a programmatic level commensurate with the level of planning and environmental documentation contained within the IRWM Plan.	Section I.3 Benefits and Impact to Other Resources was modified to a tabular format including a brief description of each resource and the high-level impacts and benefits which may occur with the IRWM Plan's implementation. Attention was given to not removing critical impacts.	
Section G Project Solicitation, Selection, and Prioritization		
Regarding **Section G.1.1 Updated Approach to Project Characterization** How does this section fit into the solicitation process?	Section G.1.1, as written, evolved through public education, and responses to questions and concerns regarding what makes a good project for purposes of IRWM Plan Implementation. This section was included in the public education phase prior to solicitation, and its relevancy is limited to the described process of how the State RMSs translate into physical projects which meet local WMSs and IRWM Objectives. No change was made.	
Section N Relation to Local Water and Land Use Planning		
How will the RWMG coordinate its water management planning activities amongst local agencies and stakeholders?	**Section N.7.1 How the RWMG will Coordinate its Water Management Planning Activities,** includes a description of specific coordination efforts in the IRWM Plan implementation, updating, and reporting, to continue to improve regional understanding of how and why data is portrayed in the IRWM Plan. This section stresses the importance of local monitoring and reporting to meet state IRWM Reporting Requirements.	



San Luis Obispo Integrated Regional Water Management Plan