# Upper Santa Clara River
# Integrated Regional Water Management Plan

June 2008

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## List of Acronyms

| | |
|---|---|
| AF | acre-feet |
| AFY | acre-feet per year |
| AMSL | above mean sea level |
| AVEK | Antelope Valley-East Kern Water Agency |
| AWWA | American Water Works Association |
| BLM | Bureau of Land Management |
| BMPs | Best Management Practices |
| Caltrans | California Department of Transportation |
| CAPP | Conservation Area Protection Plan |
| CCR | Consumer Confidence Report |
| CDFG | California Department of Fish and Game |
| CEQA | California Environmental Quality Act |
| cfs | cubic feet per second |
| CII | commercial, industrial, institutional |
| CLWA | Castaic Lake Water Agency |
| CUWCC | California Urban Water Conservation Council |
| CWA | Clean Water Act |
| CWC | California Water Code |
| DBPs | disinfection by-products |
| DDE | Dichlorodiphenyldichloroethylene |
| DDT | Dichloro-Diphenyl-Trichloroethane |
| DPH | California Department of Public Health (formerly the Department of Health Services) |
| DSA | dimensionally stable anodes |
| DTSC | California Department of Toxic Substances Control |
| DWR | California Department of Water Resources |
| ESFP | Earl Schmidt Filtration Plant |
| ESIPS | Earl Schmidt Intake Pump Station |
| EWMP | efficient water management practices |
| FY | fiscal year |
| gpcpd | gallons per capita per day |
| gpd/ft | gallons per day per foot |
| gpm | gallons per minute |
| GWMP | groundwater management plan |
| IBI | Index of Biological Integrity |
| IPS | Intake Pump Station |
| IRWMP | Integrated Regional Water Management Plan |
| KCWA | Kern County Water Agency |
| kW | kilowatt |
| LACDPW | Los Angeles County Department of Public Works |
| LACFCD | Los Angeles County Flood Control District |
| LACWWD | Los Angeles County Waterworks District |
| LAFCO | Local Agency Formation Commission |
| MCL | Maximum Contaminant Levels |
| mgd | million gallons per day |
| mg/L | milligrams per liter |
| MHI | median household income |
| MOU | Memorandum of Understanding |
| MRCA | Mountains Recreation Conservation Authority |
| MWD | Metropolitan Water District of Southern California |
| NCDC | National Climatic Data Center |
| NCWD | Newhall County Water District |
| NLF | Newhall Land and Farming Company |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resource Conservation Service |
| OEHHA | Office of Environmental Health Hazard Assessment |
| OVOV | "One Valley, One Vision" |
| PAH | Polycyclic Aromatic Hydrocarbon |
| PCB | Polychlorinated Biphenyls |
| ppb | parts per billion |
| RMC | San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy |
| RO | Reverse Osmosis |
| RTCA | Rivers, Trails, and Conservation Assistance (National Park Service grant funding program) |
| RTP | Regional Transportation Plan |
| RVIPS | Rio Vista Intake Pump Station |
| RVWTP | Rio Vista Water Treatment Plant |
| RWMG | Regional Water Management Group |
| RWQCB | Regional Water Quality Control Board |
| SCE | Southern California Edison |
| SCML | South Coast Missing Linkages Project |
| SCADA | supervisory control and data acquisition |
| SCAG | Southern California Association of Governments |
| SCE | Southern California Edison |
| SCML | South Coast Missing Linkages |
| SCOPE | Santa Clarita Organization for Planning and the Environment |
| SCREMP | Santa Clara River Enhancement and Management Plan |
| SCV | Santa Clarita Valley |
| SCVSD | Santa Clarita Valley Sanitation District of Los Angeles County |
| SCWD | Santa Clarita Water Division of Castaic Lake Water Agency |
| SDWA | Safe Water Drinking Act |
| SEA | Significant Ecological Area |
| SMMC | Santa Monica Mountains Conservancy |
| SOI | Sphere of Influence |
| SRWS | Self-Generating Water Softeners |
| SWAMP | Surface Water Ambient Monitoring Program |
| SWP | State Water Project |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board |
| TDS | total dissolved solids |
| TH | total hardness |

## List of Acronyms (cont'd)

| | |
|---|---|
| TMDL | Total Maximum Daily Load |
| TOC | total organic carbon |
| US EPA | US Environmental Protection Agency |
| US ACE | US Army Corps of Engineers |
| US FWS | US Fish and Wildlife Service |
| UWCD | United Water Conservation District |
| UWMP | Urban Water Management Plan |
| VCRCD | Ventura County Resource Conservation District |
| VCWPD | Ventura County Watershed Protection District |
| VWC | Valencia Water Company |
| WCVC | Watersheds Coalition of Ventura County |
| WRDA | Water Resources Development Act |
| WRP | Water Reclamation Plant |
| WTP | Water Treatment Plant |

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# Executive Summary

This Integrated Regional Water Management Plan (IRWMP) is a document that identifies and plans for the water resource-related needs of the Upper Santa Clara River Watershed. This IRWMP examines current and future water-related needs, identifies regional objectives for water-related resource management, develops strategies to address identified needs and then evaluates and offers various projects to meet the regional objectives. The purpose of this IRWMP is to integrate planning and implementation efforts and facilitate regional cooperation, with the goals of reducing water demands, improving operational efficiency, increasing water supply, improving water quality, and promoting resource stewardship over the long term. A collaborative stakeholder-driven process was used to develop this IRWMP. This IRWMP effort was funded entirely by local participating agencies. This IRWMP will be periodically updated to reflect future regional water–related resource needs.

## The Region

*South Fork Santa Clara River*

The Region included in this IRWMP is the Upper Santa Clara River Watershed (see Figure ES-1). The Upper Basin of the Santa Clara River, as defined for the purposes of this IRWMP, is bounded by the San Gabriel Mountains to the south and southeast, the Santa Susana Mountains to the southwest, the Liebre Mountains and Transverse Ranges to the northeast and northwest, and westward to the Ventura County Line.

The Region is diverse, with both urban and rural areas as well as National Forest land. The Region encompasses the City of Santa Clarita, the towns of Castaic, Stevenson Ranch, West Ranch, Agua Dulce and Acton in unincorporated Los Angeles County, various other unincorporated community areas in Los Angeles County, open space areas of the Santa Monica Mountains Recreation and Conservation Authority and Los Angeles County Department of Parks and Recreation, and portions of the Angeles National Forest. As of the 2000 Census, the Watershed is home to more than 220,000 people.

The Upper Santa Clara River Watershed is a logical region for integrated regional water management due to its history of cooperative water management, the topography and geography of the Region and the similarity of water issues facing agencies in the Region. There is no overlap of this Region with any other integrated water management planning region.

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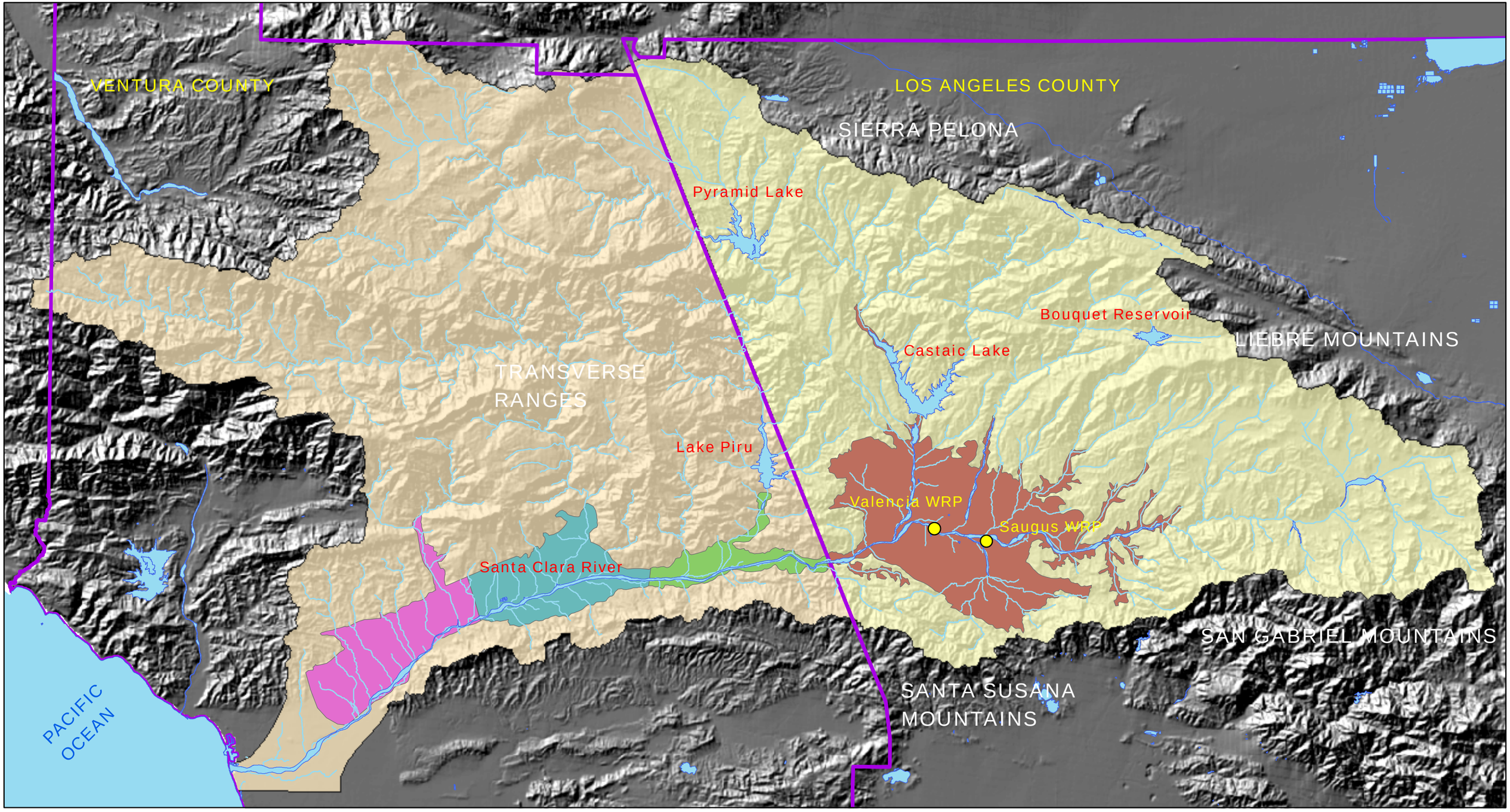


N
W E
S

**Legend**

Water Reclamation Plants

**Groundwater Basin**

- EASTERN
- PIRU
- FILLMORE
- SANTA PAULA

**Watershed**

- Lower Santa Clara River
- Upper Santa Clara River

0 5 10 20 Miles

**Figure ES-1**
**Upper Santa Clara River Watershed**
**Hydrologic Features**

## The Regional Water Management Group

The Regional Water Management Group (RWMG), is comprised of the Castaic Lake Water Agency (CLWA), City of Santa Clarita, Los Angeles County Flood Control District (LACFCD), San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC), Newhall County Water District (NCWD), Santa Clarita Valley Sanitation District of Los Angeles County (SCVSD), Santa Clarita Water Division of CLWA, and Valencia Water Company (VWC). The RWMG:

- Initiated development of IRWMP
- Coordinates meetings
- Provides funding for IRWMP preparation
- Provides guidance related to data and information presented in IRWMP
- Proposes and sponsors projects
- Will adopt the IRWMP

## Stakeholder Involvement

A broad stakeholder outreach process was crucial to ensure that this IRWMP identifies local issues, reflects local needs, promotes the formation of partnerships, and encourages coordination with State and Federal agencies. One of the benefits of this planning process is that it brings together a broad array of groups into a forum to discuss and better understand shared needs and opportunities. Members of the RWMG and other Stakeholders have participated in periodic Stakeholder meetings, reviewed draft document materials, and provided extensive collaborative input to shape the formation of this IRWMP. By participating in Stakeholder meetings to develop this IRWMP, participants have created opportunities for establishing and developing mutually beneficial partnerships. Participating Stakeholders include land use agencies, town councils, recreation and open space entities, municipal and county government agencies, water suppliers, a wastewater management district, business organizations, non-profit organizations, and regulatory and resource agencies. Stakeholders:

- Develop regional objectives
- Develop water management strategies
- Propose and sponsor projects
- Provide input to project prioritization criteria
- Provide input to proposed project ranking
- Identify opportunities for integration
- Review and comment on administrative and public drafts of the IRWMP document

## Regional Water Issues and Problems

Over the course of the Stakeholder meetings, many issues and topics were discussed. The issues raised can be summarized into five themes:

- Continued growth in water demand while imported water supplies become less reliable. The Stakeholders expressed a need for a comprehensive picture of available water supplies and the desire to find alternative water sources
- Difficulty in maintaining open space and habitat areas given population growth and increased urbanization
- Variety of water quality issues, including perchlorate contamination, and TMDLs for chloride and nitrate compounds
- Runoff and drainage issues in the more rural areas that result in negative effects to those areas and areas downstream
- Runoff and drainage issues related to urbanizing areas in the floodplain

## Plan Objectives

Objectives link issues identified in the Region and what the Stakeholders and the RWMG have determined they would like the IRWMP to accomplish when implemented. Four Stakeholder meetings focused on the development of objectives for the Upper Santa Clara River IRWMP Region. After the topic and concept of "objectives" was introduced to the group, various goals and objectives were presented and reviewed, and the Stakeholders held brainstorming sessions on issues, goals, and objectives that would be appropriate for the Region. Once a draft list of objectives was prepared and presented to the Stakeholders, the wording and definition of the draft list of objectives was discussed and refined. In developing objectives, Stakeholders determined that it was important that they be measurable, in order to gauge successful implementation of the IRWMP.

**OBJECTIVES OF UPPER SANTA CLARA RIVER IRWMP**

***Reduce Water Demand***: Implement technological, legislative and behavioral changes that will reduce user demands for water.

***Improve Operational Efficiency:*** Maximize water system operational flexibility and efficiency, including energy efficiency.

***Increase Water Supply:*** Understand future regional demands and obtain necessary water supply sources.

***Improve Water Quality***: Supply drinking water with appropriate quality; improve groundwater quality; and attain water quality standards.

***Promote Resource Stewardship:*** Preserve and improve ecosystem health; improve flood management; and preserve and enhance water-dependent recreation.

The resulting objectives generally apply to the Region as a whole and are meant to focus attention on the primary needs of the Region. Table ES-1 presents the objectives for the Region, the definition of each objective, and proposed means for measuring progress toward achieving each objective as the IRWMP is implemented.

**TABLE ES-1**
**UPPER SANTA CLARA RIVER IRWMP OBJECTIVES, DEFINITIONS AND MEASUREMENTS**

| Objective | Measurement |
|---|---|
| ***Reduce Water Demand***: Implement technological, legislative and behavioral changes that will reduce user demands for water. | Ten (10) percent overall reduction in projected urban water demand throughout the Region by 2030 through implementation of water conservation measures.<br>Replace up to 4,300 outdated water meters per year. |
| ***Improve Operational Efficiency***: Maximize water system operational flexibility and efficiency, including energy efficiency. | With assistance of local energy utility, perform electrical audit on all wholesale and purveyor water facilities once every five years.<br>Reduce, on an agency-by-agency basis, energy use per acre-foot treated and delivered. |
| ***Increase Water Supply***: Understand future regional demands and obtain necessary water supply sources. | Increase use of recycled water by up to 17,400 acre-feet per year (AFY) by 2030, consistent with health and environmental requirements.<br>Implement long-term transfer and exchange agreements for imported water with other water agencies, up to 4,000 AFY by year 2010 and 11,000 AFY by year 2030.<br>Increase water supply as necessary to meet anticipated peak demands at buildout in the Los Angeles County Waterworks District (LACWWD) No. 37 service area (~0.74 million gallons per day [mgd]) and peak demands at buildout in the Acton and Agua Dulce areas (up to 12.16 mgd).<br>Capture and recharge 5,000 to 10,000 AFY of urban and storm water runoff in a manner consistent with the pending update to the regional groundwater flow model and Basin Yield Study. |
| ***Improve Water Quality***: Supply drinking water with appropriate quality; improve groundwater quality; and attain water quality standards. | Meet all drinking water standards.<br>Prevent migration of contaminant plumes.<br>Comply with existing and future Total Maximum Daily Load (TMDLs). |
| ***Promote Resource Stewardship***: Preserve and improve ecosystem health; improve flood management; and preserve and enhance water-dependent recreation. | In areas of the floodplain where invasive species have taken hold, reduce invasive species to 40% or less cover of the understory and canopy in years 1 through 5. Every five years reduce by half the percentage of invasive species. In years 20 and beyond, keep invasive species to 2% or less. Keep invasive species to 2% or less in the upper reaches and tributaries where little to no invasive plants are currently located.<br>Acquire acreage or conservation easements for 10,900 acres of remaining proposed South Coast Missing Linkage.<br>Purchase private property from willing sellers in the 100-year floodplain.<br>Acquire 12 miles along the Santa Clara River for development as a recreational trail/park corridor. |

## Water Management Strategies and Projects

Water management strategies are the general means by which the Plan objectives will be realized. Within the *California Water Plan*, the State has identified 24 different water management strategies that can be used to improve water resource management. Stakeholders built upon the water management strategies in the *California Water Plan* as well as water management strategies already implemented in the Region. The same Stakeholder process used to identify regional needs and objectives was used to develop strategies to meet the IRWMP objectives. While brainstorming issues, goals, and objectives for the Upper Santa Clara River Region, Stakeholders discussed and developed potential strategies to address these issues.

Projects are the specific means for implementing strategies and the way objectives are ultimately achieved. To identify the many potential projects in the Region and to assess the collective contribution of these projects towards meeting the IRWMP objectives, development of this IRWMP included a "Call for Projects" which gave Stakeholders the opportunity to directly submit their projects and project concepts for consideration. The Call for Projects provided a mechanism to engage Stakeholders in the process of sharing project information and discussing the issues related to the integration of projects.

**CANDIDATE PROJECTS**

A large number of projects were submitted by Stakeholders. During the Stakeholder meeting process, several project proponents observed commonalties in their projects and decided to form partnerships and combine their individual projects into a single enhanced project. As a result, there are 39 Candidate Projects presented in this IRWMP.

The Stakeholders developed a process to prioritize projects, with the intent that highest-ranked projects be put forth in applications for funding. The prioritization of projects is based upon a detailed screening process. The process is three-fold: Initial Project Sorting; Project Development and Refinement; and Secondary Project Evaluation (please see Figure ES-2 for a graphical overview of the process). All projects submitted will be maintained on the Candidate Project list, and the list will be updated on a regular basis as new projects are submitted and as projects are developed through time and re-prioritized.

### Initial Project Sorting

Each Candidate Project was assigned points; one point was awarded for each objective that the project would meet (i.e., reduce water demand, improve operational efficiency, increase water supply, improve water quality, and promote resource stewardship). Candidate Projects were sorted so that those projects that met the most objectives appeared at the beginning of the project list. Following this exercise, Candidate Projects were further parsed and sorted based on how well they met a secondary set of criteria:

- Lack of conflict with other objectives
- Lack of downstream impacts
- Compatibility with other planning documents for the Region

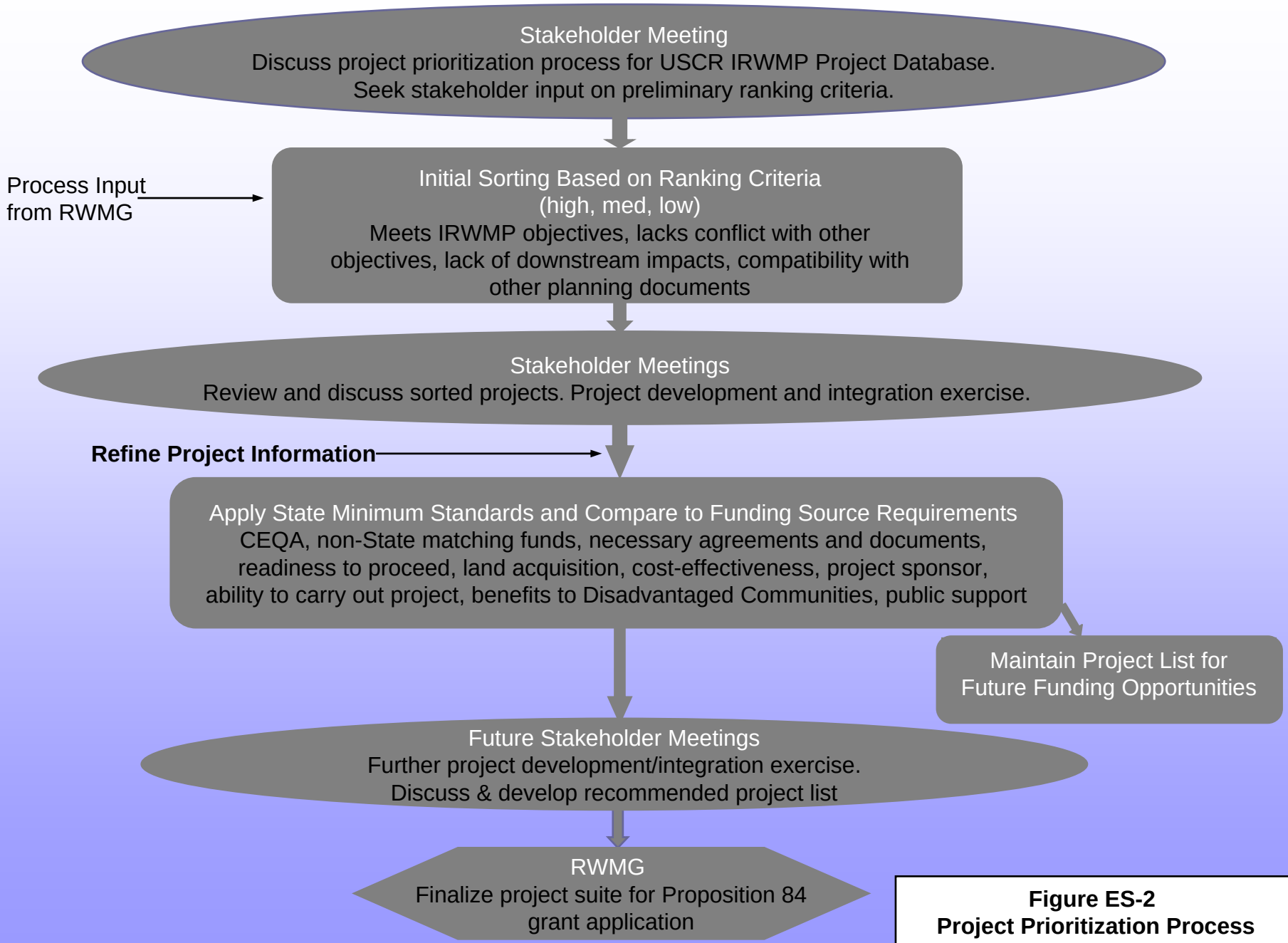


**Figure ES-2**
**Project Prioritization Process**

Using these primary and secondary criteria Candidate Projects were sorted into “high,” “medium,” “low,” and “pending further development” categories. Over time, as particular projects become more refined, it is likely they could be re-categorized (e.g., moved from the “low” category to the “high” category). In addition, over time, new Candidate Projects will be added and ranked according to the established criteria. The list of Candidate Projects is intended to continually grow and change during implementation of this IRWMP, as projects are completed and new project concepts are added. Table ES-2 lists those projects categorized as “high” during the initial sorting process.

**Secondary Project Evaluation**

It will be necessary to “pare down” the list of Candidate Projects and develop a list of projects specific to IRWMP implementation and funding applications. This second step in the prioritization process will first be applied to projects rated “high” in the project sorting exercise. If no "high" projects remain or are ready to be implemented, then projects rated “medium” will be taken through the second step. This step will be based on how well Candidate Projects meet the following State Minimum Standards and “readiness to proceed” criteria:

- Compliance with CEQA and near-term completion of environmental permitting
- Completion of necessary planning documents (urban water management plans, groundwater management plans)
- A sponsor with authority to implement project and ability to meet funding match
- Readiness to proceed (project concept advanced enough to estimate schedule and costs)

Because the *Integrated Regional Water Management Plan Guidelines* (Guidelines) are undergoing revision following the passage of Proposition 84, there is uncertainty about the specific State requirements that should be considered during project refinement, if Proposition 84 funding is to be pursued. The list of criteria described above may be revised once the Proposition 84 Guidelines (or guidelines for other funding sources) become available. The RWMG has decided that project refinement at this time will not result in useful information as data developed in the present will need to be updated to reflect revised Guidelines. After guidelines for Proposition 84 and other funding sources become available, and based on the requirements of any enacted legislation, the prioritization process will be finalized and a suite of projects (i.e., “Plan Projects”) selected for inclusion in applications to various funding sources (or for local implementation).

Following selection of Plan Projects the IRWMP will be revised as necessary to:

- Describe linkages and the interdependence of Plan Projects
- Identify any coordination of Plan Projects with State and Federal agencies
- Describe the relationship of Plan Projects to local planning, IRWMP program preferences, and *California Water Plan* Strategies

**TABLE ES-2.**
**UPPER SANTA CLARA RIVER CANDIDATE PROJECTS RATED "HIGH" IN INITIAL SORTING**

| Candidate Project Name | Description |
|---|---|
| VWC-1. Water Quality Improvement Program | A demonstration project that employs a pellet softening technology to reduce the concentration of calcium in water produced from an existing water supply well. Softened water will be delivered to 430 homes. Objectives of the project are to confirm consumer acceptance of a centralized water softening system, measure region-wide environmental protection, evaluate economic benefits to customers and the community and optimize the pellet softening treatment process. |
| CLWA-4. Large Landscape Efficiency Improvement Program | A project to implement large landscape water efficiency measures, including use of ET controllers, high distribution sprinkler heads, and maintenance staff education. |
| Santa Clarita-1, USFS-1, LADPW-12 (LACFD). Upper Santa Clara River San Francisquito Creek Arundo and Tamarisk Removal Project | Restoration of riparian habitat, increased water quantity, improvement of water quality, and reduction of flood and wildfire hazard through the removal of invasive plant species in the Upper Santa Clara River watershed. |
| SCVSD-2. Ultraviolet Treatment at the Water Reclamation Plants | Conversion of the Saugus and Valencia water reclamation plants from a chloramine treatment to ultraviolet treatment. Conversion will reduce chlorine loading and facilitate use of recycled water in the Upper Santa Clara River watershed. |
| SCVSD-3. Self-Regenerating Water Softeners Public Outreach and Rebate Program | A multi-pronged public education campaign and rebate program providing incentives for voluntary removal of residential self-regenerating water softening systems. The project intent is to reduce chloride loading. The rebate program will offer homeowners reasonable value for softening units as well as assistance with removal and disposal of units. |
| SCVSD-1/NCWD-2/SCWD-1. Feasibility Study for East Santa Clara River Wetlands and Groundwater Recharge Project | A project to investigate potential impacts from the discharge of recycled water in the eastern Santa Clara River and potential for the creation/development of wetland and riparian habitat. Based on these studies, the project would design and construct a recycled water line to discharge recycled water to the eastern Santa Clara River and construct wetlands using recycled water. |
| Santa Clarita-3. Discovery Park and Nature Center | A project to capture and filter urban runoff prior to entering the Santa Clara River. The conservation area will house an interpretive center dedicated to storm water management, water conservation, and Santa Clara River preservation. |
| CLWA-5. Customer Recycled Water Incentive Program | A project to fund hook-up costs to the CLWA recycled water system. |
| LADPW-13/City of Santa Clarita. Acquisition of Land in the Flood Plain of the Upper Santa Clara River | Acquisition of land in the Upper Santa Clara River flood plain from willing sellers so as to restrict future flood plain development and to allow restoration of lands to a natural condition. |
| RMC-1/City of Santa Clarita. Acquisition of river channel and major tributaries for watershed protection | Acquisition of riparian and flood plain parcels to limit development and preserve habitat function and other watershed benefits. |
| NCWD-1. Wellhead Treatment for Well NC 10 | A project to provide treatment to remove naturally occurring manganese and iron from groundwater. |

| Candidate Project Name | Description |
|---|---|
| CLWA-1. Recycled Water Program, Phase II | The planning, design, and construction of CLWA's next phase of recycled water improvements, including storage and recycled water pipelines. |

## Institutional Structure for Plan Implementation

While the structure and approach used to-date have been successful in creating the IRWMP, the RWMG discussed whether the MOU that formed the RWMG and facilitated broad agreement approach would work well to implement and update the IRWMP after it is adopted. A Governance Subcommittee was formed to explore options and prepare a recommendation for how to establish an effective governance structure to implement the IRWMP. The Governance Subcommittee identified the following purposes that a governance structure would be designed to fulfill for the benefit of IRWMP implementation, and subsequently identified which group (e.g., RWMG, Stakeholders, etc.) would best govern each of those efforts:

- Provide focused leadership for implementing and updating the IRWMP (RWMG in lead, with input from Stakeholders)
- Track and report progress in meeting IRWMP goals (RWMG and Stakeholders)
- Identify potential sources of outside funding and assist local entities to compete for those funds (RWMG, Stakeholders, and other sources of information)
- Provide leadership to focus cooperation for broad regional planning and implementation efforts such as (RWMG with input from Stakeholders):
  - regional water recycling
  - regional water quality preservation
  - regional water conservation programs
  - regional data and information management
- Select a contracting agency for any State or Federal grant funds obtained for implementation of the IRWMP (RWMG to select Grantee from among its members in accordance with applicable grant requirements, once the RWMG is formalized).

The Governance Subcommittee next identified the following factors that must be provided within a new governance structure to successfully accomplish these purposes and serve the recommended roles:

- Staff dedicated to provide leadership in the following areas:
  - Initiate actions
  - Collaborate with others
  - Call public/stakeholder meetings, set agendas, and lead meetings
  - Prepare background documents for IRWMP updates

  - Identify, select, and apply for appropriate funding opportunities
  - Oversee update of the IRWMP
- Capability to gather, compile and manage data and information
- Ability to execute and manage contracts
- Ability to receive and process financial transactions and meet generally accepted accounting principles
- Expertise to make a valuable contribution of services to IRWMP preparation
- Ability to obtain funds to contribute to IRWMP preparation
- Ability and willingness to serve as a point of contact for IRWMP related information
- Willingness to support process facilitation and outreach

The Government Subcommittee recommends that concurrently with the adoption of the IRWMP, the RWMG begin the process to enter into a new MOU to oversee the preparation of a grant submittal package, revise the IRWMP to be consistent with any new requirements and to formalize the membership of a Successor RWMG. This Successor RWMG will perform, at a minimum, the same functions of the Inaugural RWMG for any needed IRWMP updates. The Successor RWMG would have these responsibilities for a term to be determined in the MOU. Total membership of the Successor RWMG may be up to 11 entities and comprised of agencies/organizations whose primary mission is consistent with one or more of the IRWMP three main objectives (i.e., water supply, water quality, and resources stewardship). RWMG members will be recommended by the Stakeholder group to achieve balanced representation across the IRWMP's objectives, as well as geographic diversity across the Region.

# Section 1: Introduction

This section provides an introduction to the Region covered by this Integrated Regional Water Management Plan (IRWMP), the Stakeholders participating in development of this IRWMP, and the Stakeholder process utilized as part of this IRWMP development.

## 1.1 Introduction to the Region

The Santa Clara River Watershed (Watershed), consisting of approximately 1,634 square miles, contains the largest natural river remaining in Southern California. Areas located in the Angeles National Forest portion of the Watershed are home to the California condor and other threatened, rare, and endangered species. The Santa Clara River travels through two counties: 1) Los Angeles and 2) Ventura; efforts are underway between entities in the two (2) counties to collaboratively address issues of mutual concern and benefit, such as water quality improvement. These collaborative efforts are further discussed in Section 5.1.2 (Institutional Structure for Plan Implementation) of this IRWMP.

The Region included in this IRWMP is the Upper Santa Clara River Watershed (please see Figures 1.1-1 and 1.1-2). The Upper Basin of the Santa Clara River, as defined for the purposes of this IRWMP, is bounded by the San Gabriel Mountains to the south and southeast, the Santa Susana Mountains to the southwest, the Liebre Mountains and Transverse Ranges to the northeast and northwest, and westward to the Ventura County Line. The Upper Santa Clara River Watershed is a logical region for integrated regional water management due to its history of cooperative water management, the topography and geography of the Region and the similarity of water issues facing agencies in the Region. There is no overlap of this Region with any other integrated water management planning region. The Regional Water Management Group (RWMG), made up of local agencies (please see Table 1.3-1), recognizes that watersheds are not defined by political boundaries and future efforts to protect and manage water and watersheds in the Region must include representatives of jurisdictions (e.g., other counties or municipalities) outside of the Upper Santa Clara River Watershed. Therefore, representatives of the Region are working with the Stakeholders and agencies in the lower reaches of the Watershed, which lie in Ventura County, to include them in the IRWMP planning process and to coordinate efforts to protect the Watershed.

*Upper Santa Clara River*

The Region represents an area of approximately 654 square miles. The Region is currently not included in the Lower Santa Clara Watershed Region as it was defined by the Watersheds Coalition of Ventura County (WCVC). The WCVC began its IRWMP planning effort in 2005, and that IRWMP region included public agencies and other entities wholly contained within Ventura County. Thus, the Upper Santa Clara River Watershed was not included as part of that IRWMP effort. During 2006, discussions took place between various parties located across all parts of the Santa Clara River Watershed to ascertain if the entire Watershed could be incorporated into the WCVC IRWMP.

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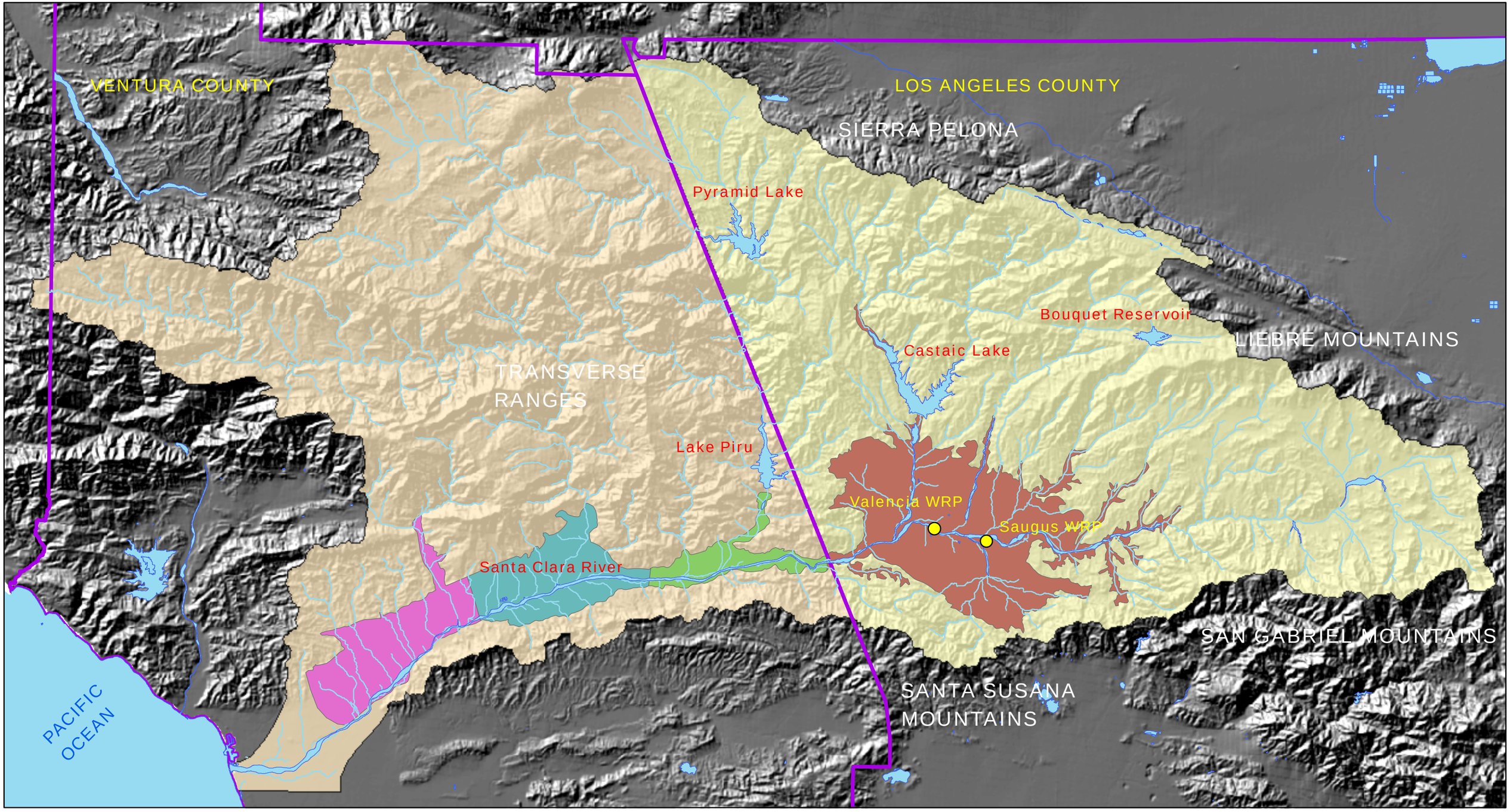



N
W E
S

**Legend**

Water Reclamation Plants

**Groundwater Basin**

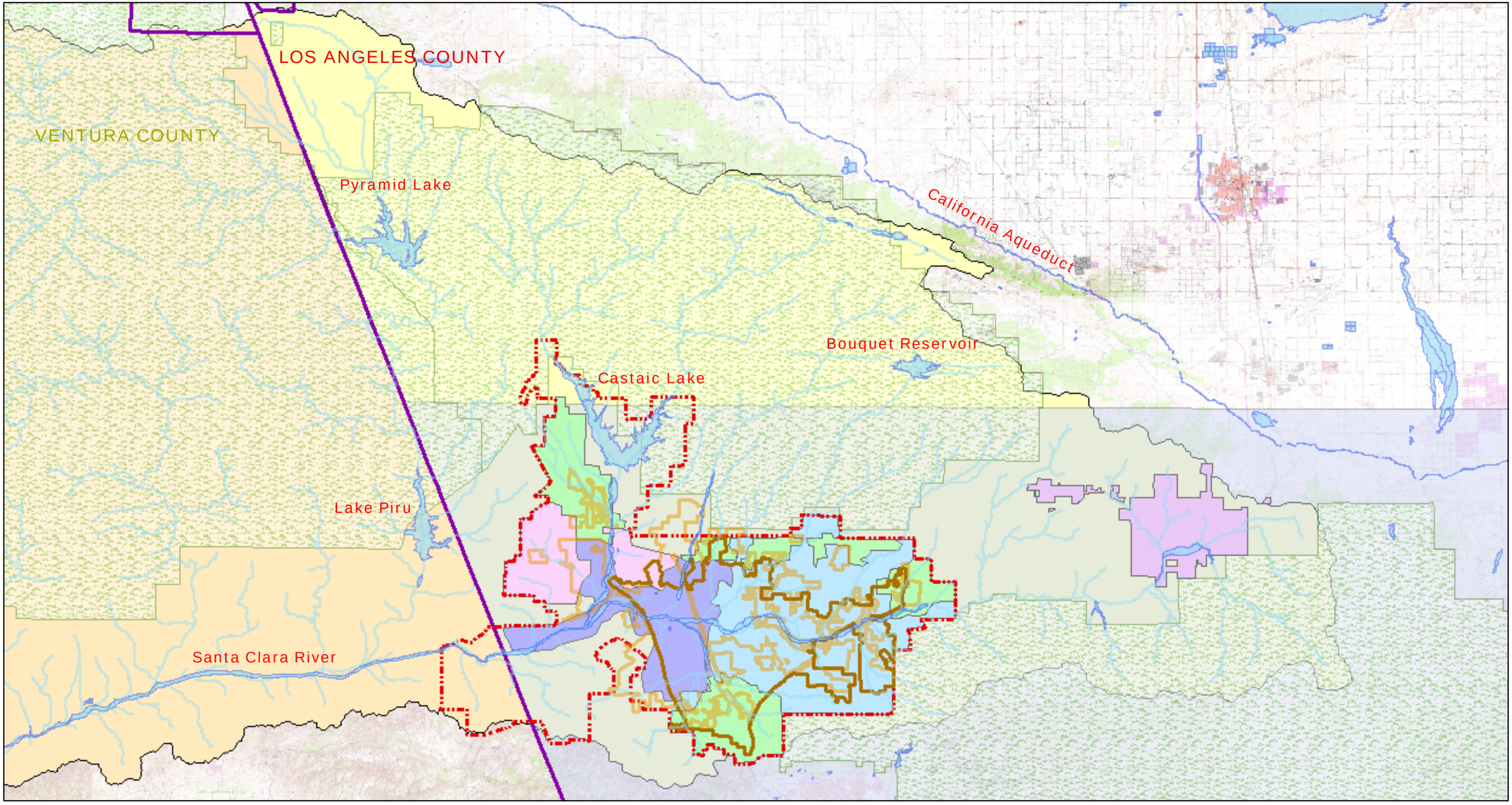
- EASTERN
- PIRU
- FILLMORE
- SANTA PAULA

**Watershed**

- Lower Santa Clara River
- Upper Santa Clara River

0 5 10 20 Miles

**Figure 1.1-1**
**Upper Santa Clara River Watershed**
**Hydrologic Features**




N
W E
S

**Legend**

**Watershed**
- Upper Santa Clara River
- Santa Clarita
- Santa Clarita Valley Sanitation District
- CLWA
- Valencia Water Company
- LA County WaterWorks District 36
- Santa Clarita Water Company
- Newhall County Water District
- LA County WaterWorks District 37
- US Forrest Service Boundary
- LA County Flood Control Boundary
- Lower Santa Clara River

0 1 2 4 6 8 10 Miles

**Figure 1.1-2**
**Upper Santa Clara River Watershed/IRWMP Region**

At the time of these discussions, the lower watershed entities were quite advanced in their IRWMP process, and the upper watershed entities had joined together to submit a "functional equivalent" IRWMP application. The WCVC determined it would continue its IRWMP process without including the upper watershed in order to be eligible for Proposition 50 Step 2 implementation grant funding. The upper watershed entities therefore initiated a separate IRWMP process for the Upper Santa Clara River Region.

Despite the separate planning efforts, agencies and other stakeholders from the Los Angeles County portion of the Watershed regularly attend and provide input to meetings of the WCVC; likewise agencies and other stakeholders from the Ventura County portion of the Watershed have been invited to, have attended, and have provided input to meetings of the Upper Santa Clara River IRWMP. So, although no formal decision has been made as to whether or not the two processes will eventually be joined, both parties are making an effort to be aware of each individual plan's content, goals, objectives, and processes.

### 1.1.1 Relationship with Neighboring IRWMPs

There are three nearby areas that are currently represented by, or are in the process of developing IRWMPs. These consist of the Antelope Valley IRWMP in the Lahontan Hydrologic Region, the Greater Los Angeles County Region IRWMP in the Los Angeles-Ventura Hydrologic Region; and as described earlier, the WCVC IRWMP, also within the Los Angeles-Ventura Region. These three plan areas nearly surround the Region (Kern County areas to the north of the upper watershed are not currently covered by an IRWMP). Therefore, the Upper Santa Clara River IRWMP plays an integral role in completing watershed analyses for the Los Angeles-Ventura Hydrologic Region and providing an important link to the neighboring Lahontan Hydrologic Region. The collective efforts of these interconnected IRWMPs will not only benefit their respective regions, but each other and the watersheds of Southern California as a whole.

## 1.2 Purpose of the Upper Santa Clara River Integrated Regional Water Management Plan

This IRWMP is the product of a collaborative stakeholder process conducted under the direction of the RWMG. This IRWMP reflects the unique needs of a diverse region, the Upper Santa Clara River Watershed. It encompasses the City of Santa Clarita, the towns of Castaic, Stevenson Ranch, West Ranch, Agua Dulce and Acton in unincorporated Los Angeles County, various other unincorporated community areas in Los Angeles County, open space areas of the Santa Monica Mountains Recreation and Conservation Authority and Los Angeles County Department of Parks and Recreation, and portions of the Angeles National Forest. As of the 2000 Census, the Watershed is home to more than 220,000 people.

This IRWMP effort is funded entirely by local participating agencies. A number of individuals have contributed to the development of this IRWMP, including representatives of local agencies, city and county staff, and consultants. This IRWMP is a comprehensive plan that primarily addresses Region-wide water management and related issues. This IRWMP complies with the State Guidelines for an IRWMP and provides for integration of project and program implementation strategies which best address the needs and objectives of the Region.

The purpose of this IRWMP is to integrate planning and implementation efforts and facilitate regional cooperation with the goals of reducing water demands, improving operational efficiency, increasing water supply, improving water quality, and promoting resource stewardship over the long term. An objective of this IRWMP is to build on a long-standing foundation of cooperation and existing efforts of the local entities and others such as the Upper Santa Clara River Chloride Total Maximum Daily Load (TMDL) Collaborative Process. The intention of this IRWMP is not to duplicate existing and ongoing plans, but to better integrate these efforts and utilize the results and findings of existing plans to put forward the projects needed to address local objectives.

This IRWMP complies with and incorporates relevant sections of Proposition 50, Proposition 84, and IRWMP principles and criteria for integrated water management planning as set forth in the guidelines for these propositions. In addition, development of this IRWMP includes the following:

- An inclusive and participatory public involvement process to ensure meaningful input (Section 1 and Appendix B)
- Appropriate level of scientific watershed assessment information (Section 2)
- Integration and coordination of planning with other agencies and entities (Sections 2 and 8)
- Identification of multiple issues and objectives and potential solutions (Sections 3 and 4)
- A process for ongoing decision-making (governance structure: Section 5)
- Phased implementation and staging of resources (Section 5)
- Ongoing monitoring of project and plan implementation (Section 5)
- A means for adaptive planning and management (Section 5)
- A long-term perspective (Sections 5, 6, and 7)

This IRWMP provides integration of projects that protect the natural resources of the Region. This IRWMP identifies additional projects that are critical to achieving Regional objectives.

## 1.3 Stakeholder Involvement

A broad stakeholder outreach process was crucial to ensure that this IRWMP identifies local issues, reflects local needs, promotes the formation of partnerships, and encourages coordination with State and Federal agencies. One of the benefits of this planning process is that it brings together a broad array of groups into a forum to discuss and better understand shared needs and opportunities. Residents of the Region are facing rapidly changing

**PURPOSE AND GOALS OF THIS IRWMP:**

- Integrate water and watershed-related planning efforts
- Facilitate regional cooperation
- Reduce water demand
- Improve operational efficiency
- Enhance water supply
- Improve water quality
- Promote resource stewardship

conditions, mainly related to urban growth, that create challenges in water resources management and the stewardship of environmental resources. Agencies and planning jurisdictions must work closely together in order to assure the delivery of clean, reliable water supplies while maintaining the quality of life and environmental values in the Region. If sufficient planning is not undertaken, the consequences for the Region are likely to be serious.

This IRWMP benefits from active participation by a wide range of Stakeholders. Members of the RWMG and other Stakeholders have participated in periodic Stakeholder meetings, reviewed draft document materials, and provided extensive collaborative input to shape the formation of this IRWMP. By participating in Stakeholder meetings to develop this IRWMP, participants have created opportunities for establishing and developing mutually beneficial partnerships. Participating Stakeholders are listed below in Section 1.3.2.

### 1.3.1 Regional Water Management Group

*Stakeholder Meeting*

As described earlier, agencies in the Region recognized the needs and benefits of regional cooperation and planning. The RWMG was initially established by a Memorandum of Understanding (MOU) that prescribed the preliminary roles and responsibilities for the RWMG including complying with the IRWMP sections of the Water Code (Appendix A). The members of the "Inaugural" RWMG that signed the MOU in May 2007 are listed in Table 1.3-1 below. The RWMG members contributed funding to retain a consultant to prepare an IRWMP for the Upper Santa Clara River and a facilitation firm with no direct association or stake in the outcome of any actions considered within the IRWMP to ensure that meetings of both the RWMG and the Stakeholders were productive and collaborative efforts. As part of this approach, the RWMG was the governing body and invited Stakeholder involvement, beyond the MOU signatories, through frequently scheduled Stakeholder meetings. The purpose of the Stakeholder group is to identify regional objectives and strategies to meet the regional objectives as well as to provide advice and feedback to assist with the development of the IRWMP. The Stakeholder meetings were governed by a set of agreed-on ground rules and operating procedures to foster full participation (see Sections 1.3.3.1 and 1.3.3.2). The first Stakeholder meeting was held on February 20, 2007 and meetings have continued regularly since then.

Hand out materials for the IRWMP used for discussion in the Stakeholder meetings were developed by a consultant team in cooperation with RWMG members and Stakeholders and made available for review and comment by the Stakeholders. They have also been made available to the public on the Upper Santa Clara River IRWMP website (www.scrwaterplan.org). This continuous feedback mechanism has been used to produce the IRWMP in an incremental fashion. This governance structure and approach has worked well to create the IRWMP.

The formation of the RWMG has strengthened the ability of the Region to address common needs and challenges. These participants' roles and responsibilities for managing water/natural resources and land use within the Region are summarized in Table 1.3-1.

**TABLE 1.3-1**
**ROLES AND RESPONSIBILITIES OF THE REGIONAL WATER MANAGEMENT GROUP**

| Agency | Roles and Responsibility |
|---|---|
| Castaic Lake Water Agency (CLWA) | Wholesale water suppler |
| City of Santa Clarita | Municipal government that provides open space and land use planning as well as stormwater capture and treatment, and creek restoration within City borders |
| Los Angeles County Flood Control District (LACFCD) | Provides flood management services within the District's boundaries |
| Newhall County Water District (NCWD) | Provides groundwater and imported water to portions of the City of Santa Clarita and unincorporated communities in Los Angeles County |
| Rivers and Mountains Conservancy (ex-officio member of the RWMG) | Acquires parks and open space, restores natural parks and open space, provides watershed improvements, and provides low impact recreation improvements within the conservancy area (1,600 square miles in Eastern Los Angeles County and Western Orange County) |
| Santa Clarita Water Division of CLWA (SCWD) | Provides groundwater and imported water to portions of the City of Santa Clarita and unincorporated communities in Los Angeles County |
| Santa Clarita Valley Sanitation District of Los Angeles County (SCVSD) | Provides wastewater treatment for the City of Santa Clarita and unincorporated communities in Los Angeles County |
| Valencia Water Company (VWC) | Provides groundwater, imported water, and recycled water to portions of the City of Santa Clarita and unincorporated communities in Los Angeles County |

The Upper Santa Clara River RWMG has the participation of at least three public agencies, two of which have statutory authority over water management.

### 1.3.2 Stakeholders

In an effort to reduce existing conflicts in the Region, this IRWMP has been prepared through a collaborative process of many agencies and organizations with an interest in improving water supply, water quality, flood management, and ecosystems in the Region. This subsection lists all of the Stakeholders grouped into several categories and describes their roles in the planning process. The broad array of participants includes the agencies that comprise the RWMG, as well as an extensive mix of town councils, regulatory, environmental, agricultural, and land use planning entities that represent all areas of the Region. A brief discussion of coordination efforts with local planning, State, and Federal agencies is also provided where appropriate.

Stakeholder meetings were held to allow for discussion of issues facing the Region, including those of this IRWMP. These meetings were open to the public and all other interested parties. Copies of the meeting minutes and presentations from these meetings are available on the project website (http://www.scrwaterplan.org) and are included in Appendix B. Table 1.3-2 provides a list of the stakeholders and their mission statements.

**TABLE 1.3-2**
**STAKEHOLDER GROUPS**

| Stakeholder | Mission Statement |
|---|---|
| ***Municipal and County Government Agencies*** | |
| City of Santa Clarita | To deliver the best and most cost-efficient municipal service to the citizens and City Council of Santa Clarita. |
| County of Ventura | To provide public infrastructure, services, and support so that all residents have the opportunity to achieve a high quality of life and enjoy the benefits of a healthy economy. |
| Los Angeles County Department of Public Works (LACDPW) | Enhancing our communities through responsive and effective public works services. |
| Los Angeles County Supervisor's Office | To support the Board Of Supervisors in serving the people of Los Angeles County. |
| Los Angeles County Department of Regional Planning | To improve the quality of life through innovative and resourceful physical and environmental planning, balancing individual rights and community needs. |
| ***Water Suppliers/Wastewater Management/Special Districts*** | |
| CLWA | A public agency providing reliable, quality water at a reasonable cost to the Santa Clarita Valley. |
| LACFCD | Enhancing our communities through responsive and effective public works services. |
| SCWD | A public agency providing reliable, quality water at a reasonable cost to the Santa Clarita Valley. |
| SCVSD | To provide environmentally sound, cost-effective wastewater management, and in the process, convert wastewater into recycled water, a valuable water resource for the Santa Clarita Valley. |
| NCWD | To provide quality water service at a reasonable cost by practicing careful stewardship of natural resources, utilizing innovative measures, and providing a quality working environment. |
| Lake Elizabeth Mutual Water Company | (No mission statement available) |
| Sierra Pelona Mutual Water Company | (No mission statement available) |
| VWC | To deliver a dependable supply of safe reliable water to existing and future customers at a reasonable cost. |

| Stakeholder | Mission Statement |
|---|---|
| ***Business Organizations*** | |
| Building Industry Association | To promote and protect the industry to ensure our members' success in providing homes for all Southern Californians. |
| Newhall Land and Farming Company | To provide a better quality of life for those who live and work in the master planned communities of Valencia and Newhall Ranch. |
| Atkins Environmental | To be a resource for environmental, health & safety issues. To provide sparkling service with professionalism, honesty, integrity, trust, and respect. To seek to balance the demand for resources with the needs of the community. |
| Valley Crest Tree Company | (No mission statement available) |
| ***Recreational and Open Space Entities*** | |
| Rivers and Mountains Conservancy | To preserve open space and habitat in order to provide for low-impact recreation and educational uses, wildlife habitat restoration and protection, and watershed improvements within our jurisdiction. |
| Nature Conservancy | To preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. |
| Los Angeles County Department of Parks and Recreation | To provide the residents and visitors of Los Angeles County with quality recreational opportunities that promote a healthy lifestyle and strengthen the community through diverse physical, educational, and cultural programming, and to enhance the community environment by acquiring, developing, and maintaining County parks, gardens, golf courses, trails, and open space areas. |
| Mountains Recreation and Conservation Authority | To acquire, develop, and conserve additional park and open space lands with special emphasis on recreation and conservation projects, the protection and conservation of watersheds, and the development of river parkways. |
| ***Regulatory and Resource Agencies- State and Federal*** | |
| California Department of Fish and Game (CDFG) | To manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. |
| California Department of Transportation (Caltrans) | Improve mobility across California. |
| California Department of Water Resources (DWR) | 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. |

| Stakeholder | Mission Statement |
|---|---|
| Los Angeles Regional Water Quality Control Board (RWQCB) | To preserve and enhance the quality of California's water resources for the benefit of present and future generations. |
| Natural Resources Conservation Service (NRCS) | "Helping People Help the Land," by providing products and services that enable people to be good stewards of the Nation's soil, water, and related natural resources on non-Federal lands. |
| US Army Corps of Engineers (US ACE) | To provide quality, responsive engineering services to the nation including: planning, designing, building, and operating water resources and other civil works projects (Navigation, Flood Control, Environmental Protection, Disaster Response, etc.); designing and managing the construction of military facilities for the Army and Air Force (Military Construction); providing design and construction management support for other Defense and federal agencies (Support for Others). |
| US Fish and Wildlife Service (US FWS) | To work with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. |
| US Forest Service-Angeles National Forest | To sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. |
| ***Non-Profit Organizations and Other Stakeholders*** | |
| Acton Town Council | To provide a stronger local voice in community development, and to try to ensure the continuation of Acton's country lifestyle. |
| Association of Water Agencies of Ventura County | To develop and encourage cooperation among entities for the development, protection, conservation and improvement of the total water resources for Ventura County. |
| Agua Dulce/Acton Country Journal | To be a resource for existing, new, and future residents of the Agua Dulce/Acton community. |
| Agua Dulce Town Council | To serve as a common meeting place for the free expression of all views and for the coming together of diverse opinions into a consensus; to discuss issues concerning Agua Dulce, to invite participation by the public, civic, and private organizations; to serve as Agua Dulce's representatives and to speak on behalf of the community; to review public and private proposals that may affect the community; to neither support nor oppose any political party or candidate. |
| Castaic Area Town Council | To act as an advisory board presenting community points of view to the Los Angeles County Board of Supervisors and various County departments such as Regional Planning, Public Works, and Parks & Recreation. |

| Stakeholder | Mission Statement |
|---|---|
| Santa Clarita Valley Environmental Coalition | (No mission statement available) |
| Santa Clarita Organization for Planning the Environment | To promote, protect, and preserve the environment, ecology, and quality of life in the Santa Clarita Valley. |
| Santa Clarita Valley Well Owners Association | Preserve our present and future water supply by working together to promote sustainable water consumption by all stakeholders in the aquifer's resource; protect our rights as private well owners and our collective parity as stakeholders in the management of the areas' subterranean water resources; educate our members in matters relative to water rights, quality, resources, historical data and any other information relevant to owning and maintaining a private water well system; advocate on behalf of the rights of private well owners collectively and individually. |
| University of California Cooperative Extension | The welfare, development, and protection of California agriculture, natural resources, and people. |
| Ventura County Resource Conservation District (VCRCD) | To provide assistance to help both rural and urban communities to conserve, protect, and restore natural resources. |
| West Ranch Town Council | (No mission statement available) |

#### 1.3.2.1 Municipal and County Government Agencies

Municipal and county government agencies include local jurisdictions and land use planning agencies that have been involved in the identification of issues, formation of objectives, and development of projects of this IRWMP. Their participation provides a link between local planning agencies and this IRWMP by offering discussion in meetings, providing accurate, consistent land use planning information, and incorporating local planning documents and goals into the project objectives. The City of Santa Clarita, the Los Angeles County Department of Regional Planning, the County of Ventura, LACDPW, and the Los Angeles County Supervisor's Office are examples of land use agencies and entities participating in the meetings.

#### 1.3.2.2 Water Suppliers/Wastewater Management/Special Districts

The water suppliers, wastewater management agencies, and special districts of the Region have been involved in the development and implementation of the objectives and projects for this IRWMP. Their participation has focused particularly on the water supply issues pertaining to the Region. These agencies include CLWA, LACFCD, SCWD, SCVSD, NCWD and VWC.

Additionally, the Sierra Pelona Mutual Water Company and the Lake Elizabeth Mutual Water Company have been invited to participate in the process.

#### 1.3.2.3 Business Organizations

The Building Industry Association's interest is in land-use planning and growth management within the Region. The building industry entities involved include the Greater Los Angeles/Ventura Chapter. Agricultural and farm interests for the Region have been represented by the Newhall Land and Farming Company. Their role is to ensure that agricultural and farm interests are incorporated in this IRWMP. Input was also solicited from the broader business community at the start of the Stakeholder process.

#### 1.3.2.4 Recreational and Open Space Entities

The role and responsibility of the recreational and open space entities is to ensure that issues and goals related to conservation and protection of the natural resources and habitat within the Region are incorporated in this IRWMP. Those involved include the Rivers and Mountains Conservancy and the Nature Conservancy. Input was also solicited from the Los Angeles County Department of Parks and Recreation and the Mountains Recreation and Conservation Authority.

#### 1.3.2.5 Regulatory and Resource Agencies - State and Federal

Several State and Federal regulatory agencies have been involved in the identification of issues, formation of objectives, and development of projects for this IRWMP. Coordination with these regulatory agencies is essential to the development and implementation of all recommended projects due to the need for regulatory and environmental approval prior to implementation. Furthermore, these agencies have had the chance to address items of concern on these projects at the Stakeholder meetings. Their roles and responsibilities are to ensure that regulatory compliance standards and goals are incorporated in this IRWMP. The agencies include: CDFG, Caltrans, DWR, Los Angeles RWQCB, NRCS, US ACE, US FWS, and US Forest Service - Angeles National Forest.

#### 1.3.2.6 Other Stakeholders/Non-Profit Organizations

Other Stakeholders involved in the development and implementation of the objectives for this IRWMP include the following: Agua Dulce/Acton Country Journal, Agua Dulce Town Council, Atkins Environmental, Castaic Area Town Council, Foothills Associates, Santa Clarita Valley Environmental Coalition, Santa Clarita Organization for Planning for the Environment, Santa Clarita Valley Well Owners Association, University of California Cooperative Extension, Town Councils of Acton and West Ranch ,Valley Crest Tree Company, and the VCRCD.

### 1.3.3 Ground Rules and Operating Procedures

This IRWMP was created using the advice, feedback, and assistance of multiple Stakeholders. In order to guarantee a fruitful process, Stakeholder meetings were facilitated by a facilitation consultant team. The Stakeholder process was also governed by a set of "ground rules" and "operating procedures" developed by the facilitation consultant team as listed below.

#### 1.3.3.1 Ground Rules for Participation

1. Cooperate with the process, including the scope and intent of our planning effort together and specific agenda topics.

2. Work toward shared goals, proposing strategies that relate to the goals and that may be acceptable to all stakeholders.

3. Base your opinions, ideas and comments on facts and experience rather than on perception.

4. Wait to be recognized by the facilitator before you speak.

5. Participate fully in the group discussion.

6. Keep your comments brief and constructive.

7. Focus on issues instead of people or personalities.

8. Reference the past if needed, but look to the future.

9. Be respectful of differing perspectives and opinions.

10. Stay with the topic at hand or hold your comment and yield to someone who has a comment on the topic at hand.

11. Be open to new ideas and be expansive in your thinking.

#### 1.3.3.2 Operating Procedures

1. Stakeholders will abide by the agreed upon participation ground rules and operating procedures during this process.

2. We will strive for mutual agreement but note when we have a minority opinion.

3. Stakeholders are encouraged to participate consistently and attend all meetings. If unable to attend, a Stakeholder may send an alternate to ensure the organization's consistent participation.

4. Stakeholders who are participating based on their organizational affiliation represent the organization; their opinions should be consistent with and as authorized by the organization.

5. Meeting summaries will be prepared by the facilitators, and will include major points of discussion, agreements, and areas of disagreement.

6. Stakeholders will receive meeting materials ten days before the meeting to allow for advance review.

7. Stakeholders will provide review and comment during the timeframes requested.

As described in the following sections, through the facilitated Stakeholder process, participants in the Upper Santa Clara River IRWMP have been able to address, discuss and recommend regional objectives and strategies, and propose projects to meet those objectives.

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# Section 2: Region Description

## 2.1 Introduction and Overview

The purpose of this section is to discuss why preparation of an IRWMP for this Region is appropriate, describe the physical and environmental characteristics of the Region, describe social and demographic characteristics of the Region, describe the sources of water and estimated water demand, and identify water quality issues.

As described in Section 1, the Region for this IRWMP is the Upper Santa Clara River Watershed. The Upper Santa Clara River Watershed consists of the portion of the Santa Clara River Watershed located within Los Angeles County. The approximately 654 square miles of the Region is bounded by the San Gabriel Mountains to the south and southeast, the Santa Susana Mountains to the southwest, the Liebre Mountains and Transverse Ranges to the northeast and northwest, and extends westward to the Ventura County Line. Elevations range from about 800 feet on the valley floor to about 6,500 feet in the San Gabriel Mountains. The headwaters of the Santa Clara River are at an elevation of about 3,200 feet at the divide separating the Region from the Mojave Desert. This IRWMP Region is adjacent to, but does not overlap other IRWMP planning regions.

The major water bodies in the Region include the Santa Clara River and its tributaries. The principal tributaries are Castaic Creek, San Francisquito Creek, Bouquet Creek, and the South Fork of the Santa Clara River. Additionally, the Santa Clara River receives tertiary-treated reclaimed water discharged from the Saugus and Valencia water reclamation plants, which are operated by the SCVSD. Figures 1.1-1 and 1.1-2 provide a map of the Region boundaries and the key hydrologic features. As shown in Figure 2.1-1, the Santa Clara River is divided into various reaches; within the Upper Santa Clara River there are four defined reaches (as defined by the Los Angeles RWQCB Basin Plan):

- Reach 5 (Blue Cut). Upstream of the USGS Blue Cut Gauging Station to the West Pier Highway 99 (now the Old Road Bridge)
- Reach 6 (Highway 99). Upstream of Highway 99 (now Old Road Bridge) to Bouquet Canyon Bridge
- Reach 7 (Bouquet Canyon). Upstream of Bouquet Canyon to Lang Gauging Station
- Reach 8 (Above Lang Gauging Station). Lang Gauging Station to headwaters

The upper portion of the Santa Clara River and its tributaries are typically ephemeral streams, having intermittent surface flows only during, and immediately after, periods of intense precipitation. The geologic characteristics of the alluvial sediments in the riverbed in this section of the river provide excellent percolation, and flowing water quickly recharges to the underground aquifers below the river. Perennial flows begin near the Old Road Bridge, due to both reclaimed water discharges and unique geologic conditions that force groundwater to rise to the surface. However, downstream of Blue Cut a “dry gap” from near Blue Cut to Piru Creek exists for much of the year, making the Upper Santa Clara River a hydrologically independent system from the Lower Santa Clara River for much of the year. Because of these characteristics and others as discussed in Section 1, and due to its history of cooperative water management, the topography and geography of the Region and the similarity of water issues facing agencies within the Region, the Upper Watershed is a logical region for integrated regional water management.

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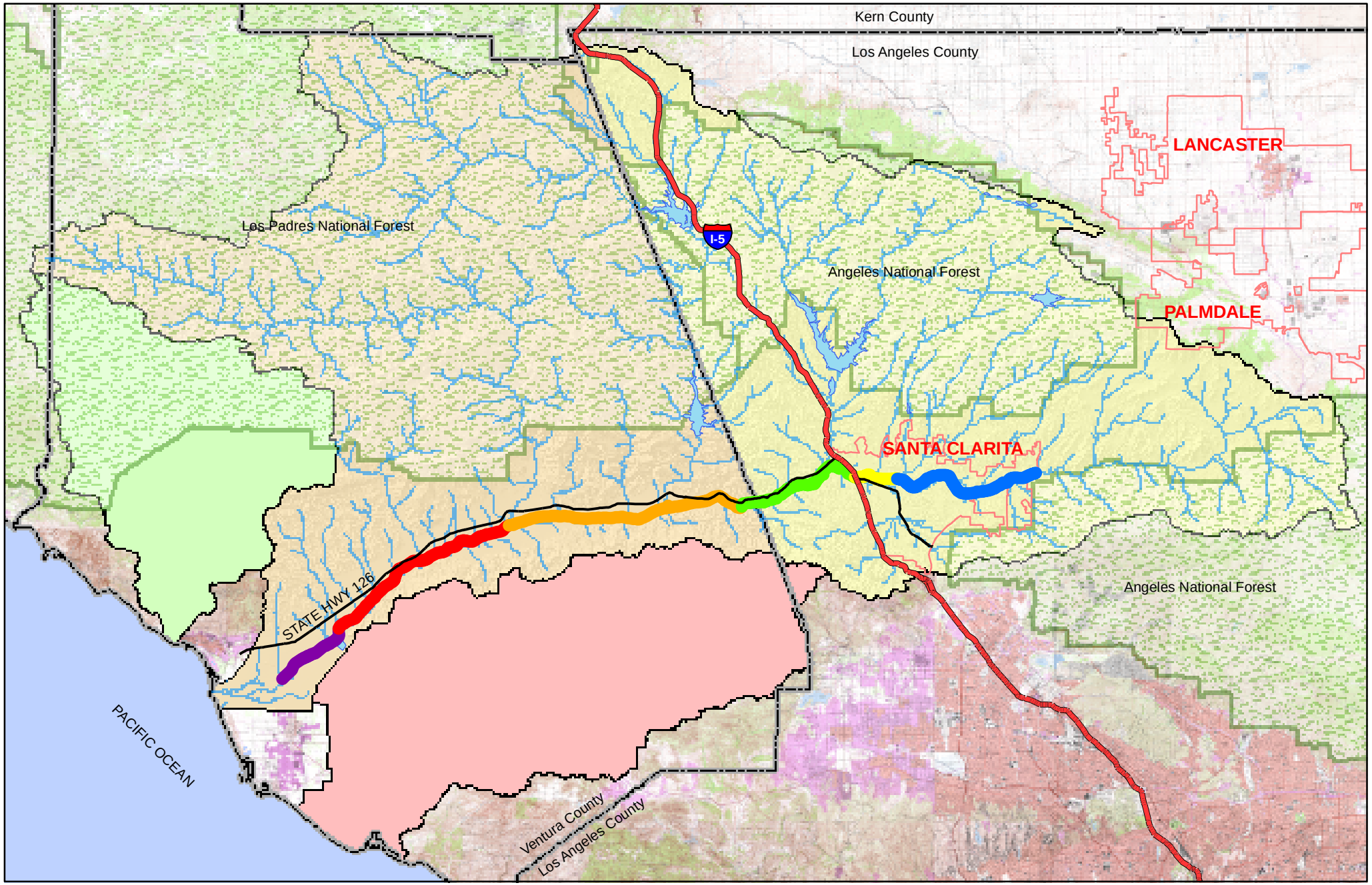




**Legend**

**WATERSHED**
- UPPER SANTA CLARA
- LOWER SANTA CLARA
- CALLEGUAS
- VENTURA

- SCR Reach 7
- SCR Reach 6
- SCR Reach 5
- SCR Reach 4
- SCR Reach 3
- SCR Reach 2

- City Boundaries
- Lake/Reservoir
- Forest Boundaries

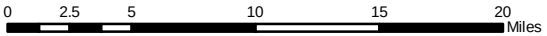
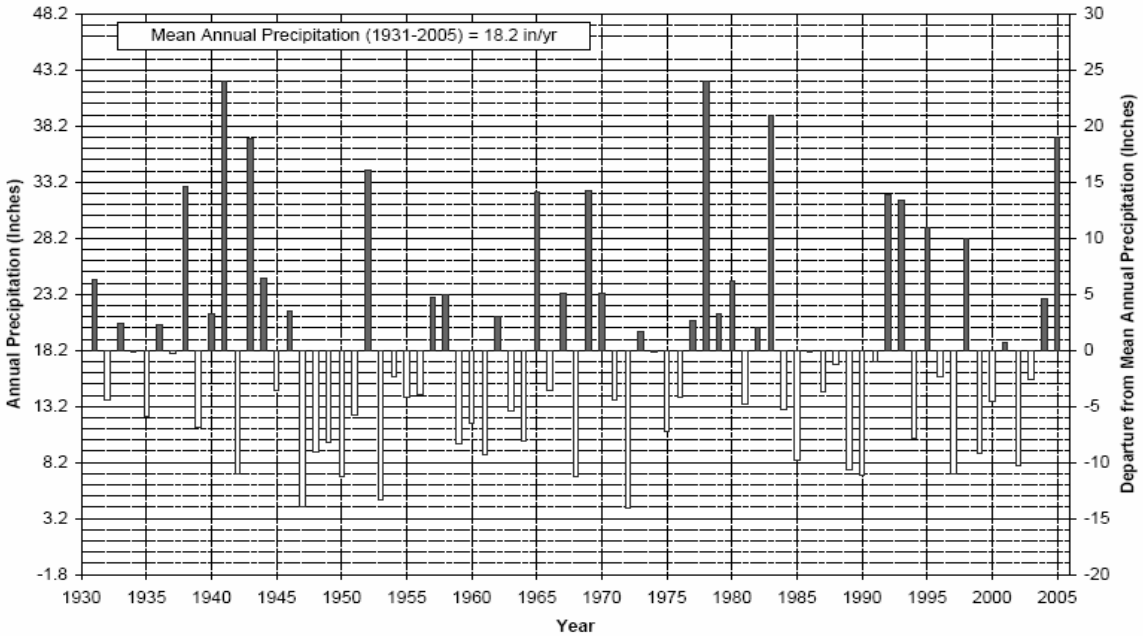



**Figure 2.1-1**
**Santa Clara River**
**Reach Boundaries**

## 2.2 Climate

The watershed is characterized by an arid climate. Intermittent periods of less-than-average precipitation are typically followed by periods of greater-than-average precipitation in a cyclical pattern, with each wetter or drier period typically lasting from one to five years. The long-term average precipitation is 18.16 inches (1931-2005), as shown in Figure 2.2-1 for the Newhall-Soledad 32c gage. The National Climatic Data Center (NCDC) and LADPW have maintained records for the Newhall-Soledad 32c gage since 1931. In general, periods of less-than-average precipitation are longer and more moderate than periods of greater-than-average precipitation. Recently, the periods from 1971 to 1976, 1984 to 1991, and 1999 to 2003 have been drier than average; the periods from 1977 to 1983 and 1992 to 1996 have been wetter than average. Year 2004 was a slightly wet year, with total precipitation of approximately 23 inches, or about five inches above average. Wet conditions that began in late 2004 continued into early 2005. Significant storm events in January 2005 produced over 13 inches of measured precipitation, or more than 70 percent of average annual precipitation in the first month of the year. Significant storm events continued in February, resulting in nearly 17 inches of additional measured precipitation, or 93 percent of average annual precipitation in February alone. In total, 2005 had about 37 inches of measured precipitation, or slightly more than 200 percent of long-term average precipitation. Both 2006 and 2007 were extremely dry years, with annual precipitation in 2006 of less than 14 inches, and less than 1 inch of precipitation measured at the Newhall-Soledad gauge in 2007 (Elowitt 2008).

**FIGURE 2.2-1**
**ANNUAL PRECIPITATION**




Source: 2006 *SVC Water Report*.

In the recent update of the *California Water Plan* (2005), an assessment of the impacts of global warming on the State's water supply was conducted using a series of computer models that

incorporated decades of scientific and historic research. Model results indicate increased temperature, reduction in Sierra Nevada mountain snow depth, early snow melt, and a rise in sea level. These changing hydrological conditions could affect future planning efforts, which are typically based on historic conditions. Difficulties that may arise include:

- Hydrological conditions, variability, and extremes that are different than current water systems were designed to manage;
- Changes occurring too rapidly to allow sufficient time and information to permit managers to respond appropriately; and
- Special efforts or plans required to protect against surprises and uncertainties.

In July 2006, DWR issued "*Progress on Incorporating Climate Change into Management of California's Water Resources*," as required by Executive Order S-3-05, which instituted biennial reports on potential climate change effects on several technical resource areas, including water resources. This report describes the progress made in incorporating current climate change data and information into existing water resources planning and management tools and methodologies. The report, whose purpose is to demonstrate how various analytical tools currently used by DWR could be used to address issues related to climate change, focuses on assessment methodologies and preliminary study results from four climate change scenarios.

Potential impacts of climate change are presented for the State Water Project (SWP) and for the Sacramento-San Joaquin Delta (Delta), which are both related to the Upper Santa Clara River Region's imported water supplies. Since the Region is reliant on imported SWP supplies as part of its overall supply mix, any reduction or change in the timing of availability of those supplies could have negative impacts on the water supply of the Region. Reductions in the quantity of SWP water available would force the Region to rely more heavily on local groundwater and local surface flows, or other sources of imported water. It is possible that local surface flows could also be reduced by changes in snow pack altitude levels and/or quantity of snow pack in the San Gabriel Mountains and other regional mountain ranges, which would reduce natural recharge, thus exacerbating groundwater availability problems.

The SWP analysis presents potential impacts on SWP operations, including reservoir inflows, delivery reliability, and average annual carryover storage, as well as many other operational parameters. The analysis uses forecast levels of climate change in year 2050, with 2020 land use levels. Some of the main impacts include: changes to south of Delta Table A[1] Amount deliveries (from an increase of about 1 percent in a wetter scenario to about a 10 percent reduction for a drier climate change scenario); increased winter runoff and lower Table A allocations in the three driest climate change scenarios; lower carryover storage in drier scenarios; and higher carryover storage in a wetter scenario.

The Delta analysis of the four climate change scenarios included the operational impacts to the SWP and other water delivery systems, as well as meeting Delta water quality standards. The analysis indicated that meeting these water quality standards will be a "larger challenge" due to climate change. Using assumed climate change scenarios and a sea level increase of one foot,

[1] Table A is a schedule of annual water amounts as set forth in long-term SWP delivery contracts. Table A defines the annual volume of water that could be delivered to a SWP contractor in a given year under regular contract provisions without consideration of surplus SWP water deliveries or other supplies available to a SWP contractor.

the ability to meet chloride standards for municipal and industrial uses would be more difficult and may cause water supply impacts which DWR could not quantify at this time.

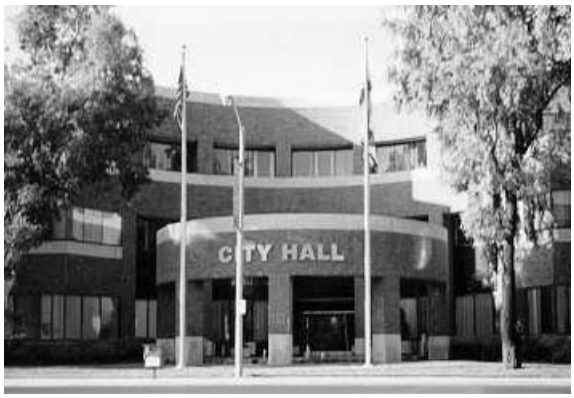
Future studies will include DWR working with other agencies to incorporate climate change information into the management of the State's water resources. Additional climate change scenarios will be developed and analyzed, with the goal of providing them to water resource planners to utilize in making water operations and management decisions. DWR states that the preliminary results in this current report are not sufficient by themselves to make policy decisions regarding water resources.

## 2.3 Land Use

Major existing land use categories identified in the 2004 *Santa Clarita Valley General Plan Technical Background Report* encompass most of the Region and have been compared with the land use categories of the Los Angeles County General Plan and the City of Santa Clarita General Plan. The categories include:

- Residential: Residential uses include a mix of housing developed at varying densities and types. Residential uses in the Region include single-family, multiple-family, condominium, mobile home, low-density "ranchettes," and senior housing.
- Commercial/Office: This category includes commercial uses that offer goods for sale to the public (retail) and service and professional businesses housed in offices (e.g., doctors, accountants, regional offices/headquarters, office complexes, etc.). Retail and commercial businesses include those that serve local needs, such as restaurants, neighborhood markets and dry cleaners, and those that serve community or regional needs, such as entertainment complexes, auto dealers, and furniture stores.
- Industrial: The industrial category includes heavy manufacturing and light industrial uses found in business, research, and development parks. Light industrial activities include warehousing and some types of assembly work. This category also includes oil and gas and mineral extraction and wholesaling.
- Public Services/Special Use Facilities: Government buildings, libraries, schools, and other public institutions are found in this category. Uses in this category support the civic, cultural, and educational needs of residents. Special uses such as correctional facilities are also grouped in this category.
- Transportation, Communication, and Utilities: This category includes freeways and major roads, railroads, park and ride lots, truck terminals, airports, communication facilities, electrical power and natural gas facilities, solid waste and liquid waste disposal, transfer facilities, and maintenance yards.
- Open Space: This category encompasses the Angeles National Forest and land used for agriculture, private and public recreational open spaces, and local and regional parks. Recreational areas, including golf courses and water bodies and water storage, and some agricultural use within unincorporated Los Angeles County areas also contribute to open space uses in the Region.

### 2.3.1 Land Use Policies



*City of Santa Clarita City Hall*

There are two (2) jurisdictions: 1) the City of Santa Clarita and 2) the unincorporated areas of Los Angeles County, within the Santa Clara River Watershed. The land use policy documents that govern the region within the Santa Clara River Watershed include the City of Santa Clarita General Plan, the Los Angeles County Santa Clarita Valley Area Plan, and the Los Angeles County Antelope Valley Areawide Plan. Both the Santa Clarita Valley Area Plan and the Antelope Valley Areawide Plan are components of the Los Angeles County General Plan with more focused polices on these individual planning areas. The City of Santa Clarita and its four communities include Newhall, Canyon Country, Valencia, and Saugus. The Santa Clarita Valley Area Plan includes the communities of Castaic, Agua Dulce, San Francisquito Canyon, Val Verde, West Ranch, Stevenson Ranch, Westridge, Violin Canyon, Hasley Canyon, Hillcrest, and the future Newhall Ranch. Several Antelope Valley Areawide Plan communities within the Santa Clara River Watershed include Gorman, Acton, Three Points, The Lakes, and Green Valley. In addition, a large portion of the watershed includes the Angeles National Forest and the Los Padres National Forest.


*Los Angeles County Hall of Administration*

"One Valley, One Vision" (OVOV) is a joint effort between the County, the City of Santa Clarita, and Santa Clarita Valley (Valley) residents and businesses to create a single vision and defining guidelines for the future growth of the Valley, and the preservation of natural resources. The result of the OVOV will be a long-range General Plan document and Environmental Impact Report (EIR) for the entire Valley Planning Area.[2] Day-to-day implementation of this General Plan, based on the Guiding Principles, will be administered by both the City of Santa Clarita and County for lands within their respective jurisdictions. The OVOV project will result in consistent plans between these agencies, better planning for resource management, and an enhanced quality of life for all who live and work in the Valley.

The individual General Plans of the County and City of Santa Clarita (and eventually the OVOV General Plan) contain policies which govern the decision-making entity as to how they review and condition individual development projects and formulate their future improvements. Typically, such policies are grouped together into elements including "Air Quality" and "Transportation." Water management has typically been included in the "Open Space and Conservation" section.

[2] In the initial planning phases of the One Valley, One Vision process, the community of Acton was included within the planning area. The 2004 Technical Background Report was prepared assuming inclusion of Acton in the planning area. However, since 2004 Acton has joined the Antelope Valley Planning Area.

One of the results of this IRWMP will be an inventory of water-related policies and programs created in order to assist each jurisdiction in planning its water management efforts. Such an inventory will be collected, discussed, and redistributed to these jurisdictions. By heightening the awareness of those directly responsible for the jurisdictions' General Plans, it is expected that additional and more effective policies and programs will be introduced into their decision-making/review processes.

For example, the County and the City of Santa Clarita in their General Plans, and the Santa Clarita Valley Area Plan have a number of adopted programs, policies and procedures which affect water management including:

- The Los Angeles County General Plan under its "General Goals and Policies" and in the "Conservation and Open Space Element" contains specific goals and policies governing water supply, water conservation, water quality, and natural watershed processes and protection.
- The County's Santa Clarita Valley Area Plan in its "Environmental Resources Management Element" provides for the protection of surface water, and contains policies specific to water quality, water supply, and flood protection.
- The City of Santa Clarita's General Plan "Open Space and Conservation Element" specifies multiple policies focused on water resources preservation, with the overall goal being "to protect quality and quantity of local water resources, including the natural productivity of all surface and groundwater, and important watershed and recharge areas."

While these planning documents contain some strategies for water management, it is recognized that additional strategies may be available to further water management. The information compiled by, and contained in, this IRWMP will help the jurisdictions working together to better manage water resources.

In addition to the authority vested in public land use planning agencies, other entities including water agencies, LAFCO, and the Southern California Association of Governments (SCAG) also influence land use. Under State law (Senate Bills 610 and 221), land use planning agencies must consult with local water agencies to determine if adequate supplies of water are available to serve proposed land developments. Additionally, water agencies must coordinate with land use planning agencies in the development of their urban water management plans, which include projections of future water demand and water supply availability during normal and dry periods. Water agencies and land use planning agencies within California are working closely together to ensure adequate management and planning for water supplies to meet the needs of growing communities.

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 establishes procedures for local government changes of organization, including city incorporations, annexations to a city or special district, and city and special district consolidations. Under this Act, a LAFCO has numerous discretionary powers, but those of primary concern are the power to act on local agency boundary changes and to adopt spheres of influence for local agencies. Among the purposes of LAFCO and the Cortese-Knox-Herzberg Act are the promotion of orderly development (avoidance of overlapping and duplicative urban services) and balancing such development with sometimes competing interests of discouraging urban sprawl, preserving

open space and prime agricultural lands, and efficiently extending government services. The Los Angeles County LAFCO has county-wide jurisdiction.

The 2008 Regional Comprehensive Plan, developed by SCAG, is a holistic, strategic plan for defining and solving inter-related housing, traffic, water, air quality, and other regional challenges. The Regional Comprehensive Plan was specifically developed to:

- Respond to the SCAG Regional Council's direction to develop a comprehensive plan that addresses the region's economic, social and environmental future and emphasizes the interdependence of nine resource areas.
- Inform local, subregional, and county economic and resource plans that are often limited by geography or scope. For example, a county-wide resource plan for open space may fail to recognize the habitat value of linking to adjacent county open space plans.
- Help meet federal transportation planning requirements that call for more integrated resource planning, particularly more integration of environmental concerns into transportation plans through expanded consultation.
- Offer recommendations to local governments from a regional, comprehensive perspective for consideration into the development of local General Plans and the design and review of major development through the region's Intergovernmental Review process.
- Provide a regional response and strategy for meeting climate change mandates that call for reductions in greenhouse gases.
- Offer a comprehensive, integrated policy plan that helps position Southern California to get its fair share of revenue from federal and state funding programs, such as the traffic, housing, water, and park infrastructure bonds approved in 2006.
- Help stakeholders make the most of their limited resources by highlighting priority policies for future implementation that maximize benefits both locally and regionally.

The Regional Comprehensive Plan is divided into nine resource chapters that identify the regional challenges, plan, goals and outcomes envisioned to help communities and decision-makers achieve a sustainable future:

1. Land Use and Housing
2. Open Space and Habitat
3. Water
4. Energy
5. Air Quality
6. Solid Waste
7. Transportation
8. Security and Emergency Preparedness
9. Economy

The Regional Comprehensive Plan identifies the regional challenges, with respect to water resources, as follows:

> "Recent projections indicate that nearly half of the state's population will reside within the SCAG region by 2030. This underscores the importance of questions about Southern California's future water supply, and of reliably meeting our urban water demands in a way that is sensitive to both ecological imperatives and the evolving emphasis on sustainable development. We also face challenges in how we assure a high quality water supply for consumption, recreational, habitat, and other needs.
>
> Eliminating water quality impairments throughout the region's urban watersheds is a major challenge. These impairments (usually caused by "non-point" source pollutants) are largely caused by urban and stormwater runoff and must be cleaned up under the Clean Water Act. As a result, water quality regulators are imposing significant and costly pollution control measures on local agencies with compliance deadlines."

The Regional Comprehensive Plan focuses on three strategies and goals for addressing these water supply and water quality issues.

**First,** is the development of sufficient water supplies to meet the water demands created by continuing regional growth through promoting policies that encourage environmentally sustainable imports, local conservation and conjunctive use, and reclamation and reuse.

**Second,** is to improve water quality by implementing land use and transportation policies and programs that promote water stewardship and eliminate water impairments and waste through more concentrated and clustered developments.

**Third,** the region needs to improve comprehensive and collaborative watershed planning that yields water wise programs and projects.

This IRWMP directly helps to meet the first and third strategies.

Preparation of this IRWMP was coordinated with local land use agencies; details of this coordination appear in Section 8 of this IRWMP.

## 2.4 Ecological Processes and Environmental Resources

This section describes the basic environmental resources and ecological process of the Watershed, and also describes relevant issues and existing and potential venues for resolution of these issues.

The Upper Santa Clara River is home to a range of endangered, threatened and rare species, including fish species such as unarmored three-spine stickleback (*Gasterteus williamsoni*). The principal natural features of the Upper Santa Clara River Region include the Santa Clara River, Aliso Canyon, Soledad Canyon, the Santa Clarita Valley, Castaic Valley, San Francisquito Canyon, Bouquet Canyon, Placerita Canyon, and Hasley Canyon. This complex topography provides a natural setting that supports a diverse assemblage of biotic communities.

The natural ecosystem, comprised of a wide variety of biological resources (plant and animal species), as well as physical attributes (land, water, air and other important natural factors), is a vital resource contributing to the economic and physical well being of the communities of the Upper Santa Clara River. Disruption of one factor may intrinsically affect another due to its inter-relationship, and the significance of those effects is difficult to determine without consideration of the whole system. All native species and ecosystems are of aesthetic, ecological, educational, historic, recreational and scientific value.

Ecological processes in the Region which are influenced and improved by water management measures are numerous. Of major concern in the Upper Santa Clara River Region is natural water production and watershed protection, which is critical to maintaining a healthy and balanced ecosystem, one which protects plant and wildlife species and provides for regionally valuable recreational uses (e.g., hiking, camping, hunting, and many forms of outdoor recreation).

**NATURAL FEATURES OF THE UPPER SANTA CLARA RIVER**

- Angeles National Forest
- Aliso Canyon
- Bouquet Canyon
- Castaic Valley
- Hasley Canyon
- Placerita Canyon
- San Francisquito Canyon
- Santa Clara River
- Santa Clarita Valley
- Soledad Canyon
- Vasquez Rocks

The Upper Santa Clara River system is largely defined as an ephemeral stream with highly variable flows, depending on precipitation levels. It can also be prone to flooding, as was observed during the 2004-05 rainy season, which resulted in damage to many agricultural and urban properties. However, some flood control and prevention measures can have negative impacts on natural habitat, particularly riparian habitat.

Water reclamation, aerial deposition, imported water use, as well as urban and agricultural land practices can create pollutants which impact water quality (see Section 2.8). Most of the Impaired Waterbodies listed in Section 2.8.1 of this IRWMP resulted from these sources. Implementation of programs such as the TMDL program, National Pollutant Discharge Elimination System (NPDES) and the Nonpoint Source Pollution Control Program are key to integrated water management.

Part of the intent of both Propositions 50 and 84 is to create a framework and a collaborative process whereby conflict between different water uses can be avoided or reduced. In the past, development of water supply for human use was done without due regard for habitat preservation or restoration. However increasing priority is being given to changing the process of water resource development and human use to conduct these activities in ways which will not damage natural resources and to restoring damaged natural habitats so that they not only survive but thrive. A large and growing preservation and restoration movement is underway in the Region which has local jurisdictions working in conjunction with habitat preservation advocacy groups, in an attempt to restore balance and improve water quality of one of the last large, natural riparian ecosystems in Southern California.

### 2.4.1 Sensitive Biological Resources

The Region is host to at least 26 special status plant species and 46 special status wildlife species. These are species of plants and animals that are designated endangered, threatened

or rare by the California Fish and Game Commission or the U.S. Department of the Interior and Department of Commerce. A federally listed endangered species is one facing extinction throughout all, or a significant portion of, its geographic range. A federally listed Threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The State of California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy; and a Threatened species as one present in such small numbers throughout its range that it may become endangered if its present environment worsens. The Rare species designation applies only to California native plants.

Additionally, there are many species whose survival and reproduction in the wild are in immediate jeopardy and are considered to be sensitive to further intrusion upon their habitat. Species that are not listed under the Federal Endangered Species Act or the California Endangered Species Act, but which nonetheless are declining at a rate that could result in a designation of Endangered, Threatened or Rare, are classified as Species of Special Concern.

The vegetation and habitat types in the Region that merit "special status" because they are considered unique, are limited in distribution in the Region, or provide particularly high wildlife value include: native grassland, coast live oak riparian forest, southern willow scrub, big-cone spruce-canyon oak forest, southern sycamore-alder woodland, southern cottonwood-willow riparian woodland and forest, freshwater marsh, alluvial fan sage scrub, and vernal pool (CLWA 2006). In addition, coastal and desert biomes meet in this Region, allowing breeding and cross pollination of otherwise isolated species. Following are descriptions of these significant plant communities:

- **Native grassland** communities consist of low herbaceous vegetation dominated by grasses, often mixed with native bulbs and other herbaceous species. Representative native grasslands in the Region include the significant patches of needlegrass and melic grass species.
- **Coast live oak riparian forest** consists of dense overstory formations of coast live oak generally occurring in narrow formations along water channels. Common understory species include the willow, California bay, and other riparian understory species common to Southern California.
- **Southern willow scrub** occurs along seasonal or permanent water courses and is comprised of dense thickets of broad-leafed winter-deciduous riparian species. This community's 'scrub' formation is maintained by frequent heavy over-flooding.
- **Big-cone spruce-canyon oak forest** generally consist of shade-loving species such as big-leaf maple and California bay, and occur in higher elevations on north-facing slopes. Chaparral species generally dominate the understory.
- **Southern sycamore-alter woodlands** in the Region are generally found on broad plains with heavy alluvial substrates along creaks and streams with permanent flows. This community only occurs in the upper reaches of the watershed, in areas within Bear, Sand, Placerita and Aliso Canyons.
- **Southern cottonwood willow riparian natural areas** are dominated by Fremont cottonwood and provide broad-leafed deciduous habitat. This community forms mature overstory areas along many reaches of the Santa Clara River and its main tributaries.

Extensive formations occur just west of Acton in Upper Aliso Canyon and lower San Francisquito Canyon.

- **Freshwater marsh communities** in the watershed are dominated by the perennial, emergent cattail or bulrush, which often grows dense enough to form a closed canopy. Freshwater marsh generally develops in areas of still or slow-moving permanent freshwater.
- **Alluvial fan sage scrub** is made up of a variety of shrubs that can establish themselves and persist within floodplains, alluvial plains, or alongside seasonal streams, where infrequent flooding occurs. Dominant shrubs vary depending on location but include scalebroom, Great Basin sage brush, rabbitbrush and foothill yucca.
- **Vernal pools** are seasonal bodies of standing water, and are very rare in the Los Angeles County and the Upper Santa Clara River Watershed. The one small seasonal pond with vernal pool characteristics known to exist in the Region occurs on the Golden Valley Ranch (near the Placerita Canyon-Sand Canyon divide) and is surrounded by coastal sage scrub and fringed with native needlegrass and melic grass.

Extensive patches of high quality riparian habitat, including southern cottonwood-willow riparian forest and mulefat scrub are present along the length of the Santa Clara River and its tributaries. These plant communities provide nesting and foraging habitat for many sensitive bird species including the endangered least Bell's vireo (*Vireo bellii pusillus*), the southwestern willow flycatcher (*Empidonax traillii extimus*), the yellow-breasted chat (*Icteria virens*), and the yellow warbler (*Dendroica petechia brewsteri*). They are also habitat areas for the federally and state-listed endangered fish species unarmored three-spine stickleback. The riparian scrub habitats in Mint Canyon and other tributaries to the Santa Clara River may also support the slender-horned spineflower (*Dodecahema leptoceras*) (VCWPD 2005).

*Yellow Warbler*

The Angeles National Forest, a large portion of which is located within the watershed, is also occupied by approximately 45 known species that are deemed sensitive by the US Forest Service, and provides shelter for at least 16 federally listed threatened and endangered plants and animals. Many of these are found in few other places. The forest is a critical habitat for the arroyo toad (*Bufo californicus*), mountain yellow-legged frog (*Rana muscosa*), California red-legged frog (*Rana aurora draytonii*), and several species of fish. Sensitive species such as the California spotted owl (*Strix occidentalis*) and Nelson bighorn sheep (*Ovis canadensis nelsoni*) are also found there (US Forest Service 2003).

*California red-legged frog*

Pressures for growth and recreational activities in the Region have been linked to significant declines in sensitive species. Growth of urban areas results in loss of available or suitable habitat for sensitive species. Besides loss of habitat, proximity to human development can be harmful to sensitive species. Human development introduces roadway traffic, pesticides, urban runoff and non-native species, which degrade habitat and food sources for sensitive species.

Land use practices, such as cattle and sheep grazing and mining are also considered harmful to many species. Recreational uses, such as off-highway vehicle use are known to conflict with sensitive species habitat. Improper disposal of food wastes and trash by recreational users often attracts predators of the sensitive species, such as common ravens. Dogs brought onto public lands by recreation can also disturb, injure, or kill sensitive species.

### 2.4.2 Wetland Habitat

Wetland habitats are transitional lands between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water due to underlying soils, geography and topography. Wetlands include, but are not limited to, marshes, bogs, sloughs, vernal pools, wet meadows, river and stream overflows, mudflats, ponds, springs, ephemeral springs, and seeps. Wetlands may also include open water habitats like lakeshores.

Important wetland systems found in the Region include, but are not limited to, freshwater marshes, vernal pool systems and other perennial overflow areas. Freshwater marsh develops in areas of still or slow-moving permanent freshwater, and therefore occurs in scattered pond areas and slow-flow portions of the Santa Clara River and its tributaries. Vernal pools are seasonal bodies of standing water that typically form from spring runoff, dry out completely in the hotter months, and often refill in the autumn. Vernal pools range from extensive, densely vegetated lowland bodies to smaller, isolated upland bodies with little permanent vegetation. The small seasonal pond located in the Placerita Canyon-Sand Canyon divide is a biotic community unique to the Region and represents one of only three known vernal pools in the County.

The variety of riparian and wetland vegetation types that exist within the Region provide habitat for a diverse assemblage of plant and animal species. Supported species include vascular plants, vertebrates and invertebrate communities. Slope wetlands in the region support native grasslands such as needlegrass species and melic grasses, and seeps found in chaparral areas frequently support stands of giant rye. Vernal pools provide important breeding habitat for many terrestrial or semiaquatic species such as frogs, salamanders, and turtles. Wetlands found throughout the Region support communities of invertebrates such as native fairy shrimp, cranefilies, stoneflies, water boatmen, and various beetle species. The health of the more sensitive of these invertebrate species serves as an important indicator of the overall integrity of the riverine, riparian and wetland ecosystems.

Many of the Region's special status species are dependent upon wetland habitats for their survival. The Biological Resources Assessment for the Proposed Santa Clara Significant Ecological Area (SEA)[3] provides a list of animal species known to occur or potentially occurring within the Santa Clara SEA that have been federally listed or highlighted by the state as endangered, threatened, protected, or of special concern. Listed wetland species include vascular plants such as the spreading navarretia (*Navaretia fossalis*), found in the Newhall area, and California Orcutt grass (*Orcuttia californica*). The riverside fairy shrimp (*Streptocephalus woottoni*) is the only listed sensitive invertebrate species, and is known to occur in the vernal pools and swales near the Golden Valley Ranch. The southwestern pond turtle (*Clemmys marmorata pallida*) is found in Ben Canyon and Vasquez Rocks, and several records indicate

[3] For more information on Significant Ecological Areas, see Section 2.4.5.

the presence of the two-striped garter snake (*Thamnophis hammondii*) in perennial waters of the Upper Santa Clara River. Sensitive bird species reliant on wetland habitat and known to occur or commonly migrate to the area delineated by the boundaries of the Santa Clara SEA include the western least bittern (*Ixobrychus exilis hesperis*), northern harrier (*Circus cyaneus*), and the merlin (*Falco columbarius*).

### 2.4.3 Wildlife Corridors

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals.

In addition, such islands often provide the only available habitat for species that occupy the corridor area. Biologists have identified areas that experience recurrent aquatic, riparian, or terrestrial species movement that are crucial to these species as wildlife "corridors" or habitat linkages. These corridors encourage preservation of plant and animal populations by allowing greater access to food and water and a larger gene pool.

The river corridor acts as a landscape linkage and escape route, providing for wildlife movement between and among habitat patches from the San Gabriel Mountains to the Pacific Ocean. The Region hosts a wide diversity of wildlife including mammals, birds, amphibians, reptiles, fish and invertebrates, as described above. Some of these species migrate along ridgelines in the mountainous terrain where there are fewer interfaces with urban uses. Other species migrate along the arroyos, rivers and other riparian and wetland corridors, where urban development is nearer, and the potential for adverse impacts much greater, when these natural habitats are encroached upon.

*The River is a Valuable Wildlife Corridor*

Habitat loss and fragmentation are the leading threats to biodiversity. This highlights the need to conserve well-connected networks of large wildland areas where natural ecological and evolutionary processes can continue operating over large spatial and temporal scales. Adequate landscape connections allow these ecosystems to respond appropriately to natural and unnatural environmental perturbations, such as fire, flood, climate change, and invasions by non-native species.

Within the Region, a Conservation Area Protection Plan (CAPP) is proposed as part of partnership involving representatives from CDFG, US FWS, US Forest Service, Bureau of Land Management (BLM), Southern California Wetlands Recovery Project, Caltrans, Los Angeles RWQCB LADPW Watershed Division, Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy, The Nature Conservancy, Trust for Public Land, Friends of the Santa Clara River, South Coast Wildlands, and others. The principle goal of the proposed CAPP is to preserve essential open space and viable connections for wildlife movement between two core habitat areas, the San Gabriel Mountains and the Castaic area Ranges (including the Sierra

Pelona), both part of the Angeles National Forest managed by the US Forest Service. The land between these two core habitat areas encompasses a unique ecological transition zone between coastal and desert habitats. Coastal sage scrub and chaparral blankets the hillsides in the western part of the proposed CAPP, with dense coast live oak woodlands in canyons, and high quality riparian scrub and woodlands at lower elevations. The easternmost part of the linkage has a strong desert influence dominated by desert scrub, with scattered juniper and Joshua tree woodlands (Penrod et al. 2004). Within this proposed CAPP, a system of mostly unaltered natural hydrological features currently supports these vegetation types in the upper watershed; the demand for housing and infrastructure development poses a threat to this resource and to wildlife movement. A main feature of the proposed CAPP is the Santa Clara River as it acts as a natural linkage.

The proposed CAPP would secure a functional landscape level connection between the San Gabriel and Castaic core areas and help to ensure the ecological integrity of areas already protected in the linkage. There is a number of existing conservation investments (e.g., BLM, County Parks, City of Santa Clarita, etc.) in the linkage, covering 1,514 acres, which are protected from habitat conversion. The proposed CAPP encompasses a total of 8,697 acres on 392 parcels, which are targeted for acquisition or conservation easements in the County.

### 2.4.4 Locally Important Species and Communities

The diverse topography and climate of the Upper Santa Clara River Watershed and environs provide an environment that sustain certain plant and animal species or communities not found elsewhere; these are considered locally important as they are characteristic of or unique to the Region. Locally important communities identified for the Region include types of coastal sage scrub and oak and riparian woodlands, among others. Certain species found within these habitat types are considered candidates for designation by the California Fish and Game Commission or the U.S. Secretary of Commerce, if they are not already so designated.

Important habitats and biological resource areas within the Region include (City of Santa Clarita 1999):

- Land within the Angeles National Forest, and wildlife corridors between the Santa Susana Mountains and the San Gabriel Mountains
- Canyon areas, including San Francisquito Canyon, which provide important habitat (water, food and shelter) and biological resources, and add to the viewshed of the Valley
- Habitat for federally and state-listed endangered, threatened or rare plant and wildlife species associated with riparian woodlands in the Santa Clara River, and in chaparral and coastal sage scrub vegetation
- Open water habitat provided by Castaic Lake, Castaic Lagoon, Bouquet Reservoir, and isolated locations along the Santa Clara River
- Oak trees located within and outside the City of Santa Clarita

- Habitat and associated biological resources in the five SEAs designated by the County, and described below in Section 2.4.5

The Angeles National Forest has some unique topography that also affects its plant and animal life. Lower elevations of the forest are covered with dense chaparral, while the high mountains are blanketed by evergreen forests of pine, fir, and cedar (US Forest Service 2003).

### 2.4.5 Significant Ecological Areas

SEAs are defined by the County and generally encompass areas that are valuable as plant or animal communities and often important to the preservation of threatened or endangered species. Preservation of biological diversity is the main objective of the SEA designation. SEAs are neither preserves nor conservation areas, but areas where the County requires development to be designed around the existing biological resources (Los Angeles County 2006). Design criteria in SEAs include maintaining watercourses and wildlife corridors in a natural state, set-asides of undisturbed areas, and retaining natural vegetation and open space.

SEAs in the region include the following (see Figure 2.4-1):

- *Santa Clara River (Area #23).* This is the largest SEA (currently 41,344, acreage may change during the Los Angeles County General Plan Update) in the Santa Clarita Valley, extending through the City of Santa Clarita and along the entire Santa Clara River. It supports a variety of natural habitats including freshwater marsh, coastal sage scrub, oak woodland and riparian woodlands. A great portion of the river channel remains dry for most of the year. In scattered areas, however, the water table under the stream bed is high, and lush riparian vegetation provides refuge for birds and wildlife. For example, the red-shouldered hawk (*Buteo lineatus*), which is becoming increasingly uncommon in southern California due to habitat destruction, is restricted to this community. This assemblage of vegetation (a broad wash association in the SEA descriptions) is unlike that found in steeper mountain canyons and is rare in the Los Angeles basin. It is the only major river drainage from the San Gabriel Mountains that remains un-channelized for most of its length. This area was designated as an SEA primarily because of the threat of loss of suitable habitat for unarmored three-spine stickleback (*Gasterteus williamsoni*), a federally and state-listed endangered species. This species formerly occurred in the Los Angeles, San Gabriel, and Santa Ana rivers, but is now restricted to San Francisquito Canyon, three areas in the Santa Clara River, and San Antonio Creek on Vandenberg Air Force Base. The stickleback requires clean, free-flowing perennial stream and ponds surrounded by natural vegetation. The adjacent floodplain of the Santa Clara River is included in this SEA in order to preserve this habitat. The natural vegetation along the intermittent portion of the stream slows heavy runoff during rainy seasons and thus decreases destruction and siltation of stickleback habitats downstream.

- *Santa Susana Mountains (Area #20).* This SEA encompasses 12,000 acres. These mountains are one of several relatively small ridges (dominated by Oat Mountain at elevation 3,840 feet) that form the western end of the transverse ranges and blend eastward into the larger San Gabriel and San Bernardino mountains. The Santa Monica Mountains are also part of this system. Vegetation within the SEA consists of coastal sage scrub on the south facing sunlit slopes and dense chaparral on the north facing

slopes. Riparian and oak woodland vegetation are found along stream drainages and within canyons, along with big-cone spruce (*Pseudotsuga macrocarpa*), bigleaf maple (*Acer macrophyllum*), and California walnut (*Juglans californica hindsii*). The oak woodland habitat is extremely diverse containing six species of oaks, one of which is found only in this area of the County (the Dunn Oak, *Quercus dunnii*). The interior portions of this SEA are largely undisturbed by the urbanization that has occurred both to the south (San Fernando Valley) and north (Santa Clarita). These wilderness areas are important for maintaining gene flow and wildlife movement between the Santa Monica and San Gabriel mountains, which are now largely isolated from one another by urban development.

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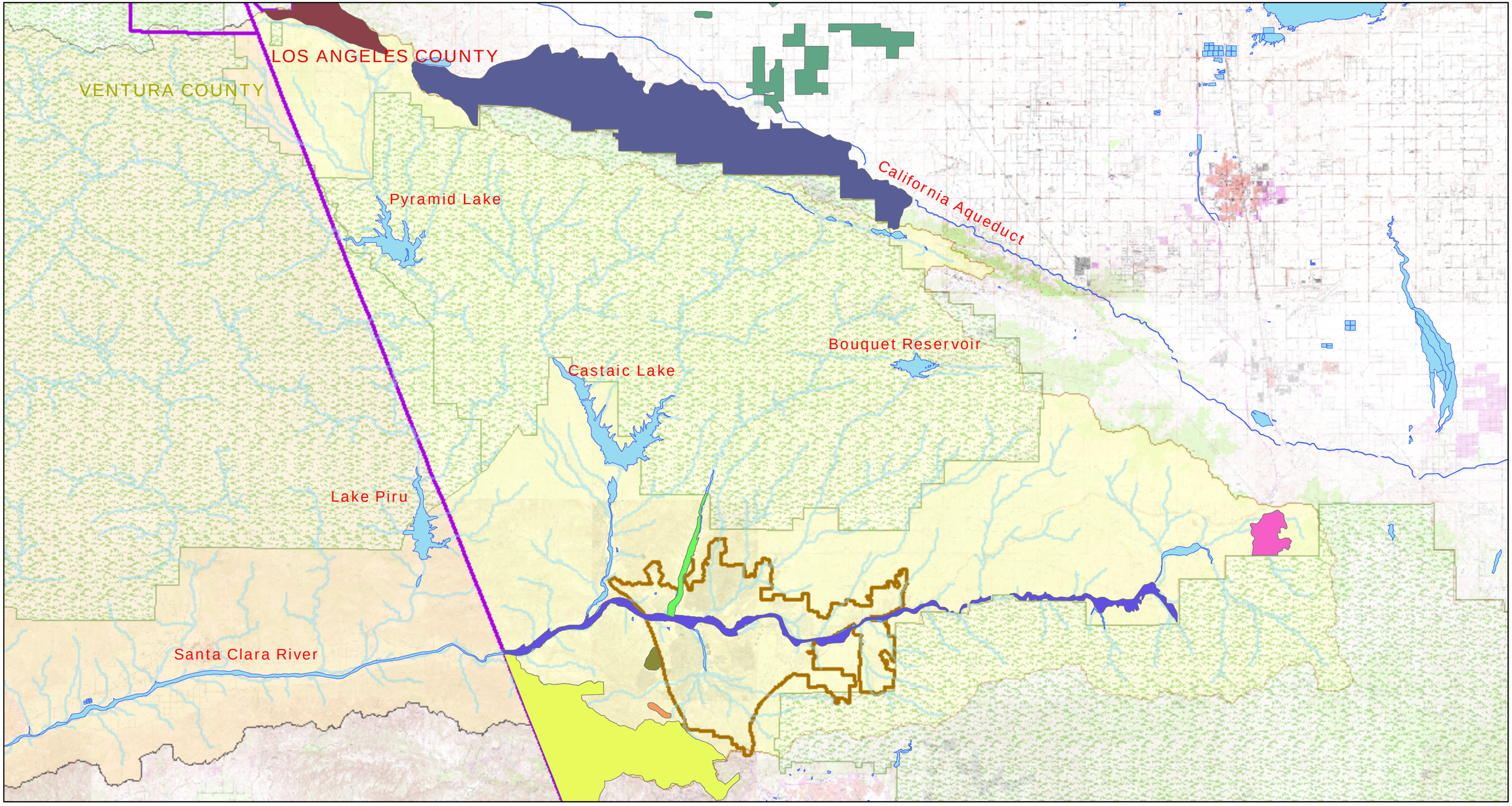


N
W E
S

**Legend**

**WATERSHED**

- UPPER SANTA CLARA
- LOWER SANTA CLARA
- City of Santa Clarita
- US Forest Service Boundary

**SEA**

- 60 JOSHUA TREE WOODLAND HABITAT
- 61 KENTUCKY SPRINGS
- 63 LYON CANYON
- 58 PORTAL RIDGE-LIEBRE MOUNTAIN
- 19 SAN FRANCISQUITO CANYON
- 23 SANTA CLARA RIVER
- 20 SANTA SUSANA MOUNTAINS
- 59 TEHACHAPI FOOTHILLS
- 64 VALLEY OAKS SAVANNAH, NEWHALL

0 1 2 4 6 8 10 12 Miles

**Figure 2.4-1**
**Upper Santa Clara River Watershed**
**Significant Ecological Areas**

- *San Francisquito Canyon (Area #19).* This SEA (currently 1,220 acres, acreage may change during the Los Angeles County General Plan Update) contains an intermittent stream that drains the hillsides in the Angeles National Forest. Riparian vegetation is located in the canyon bottom along the stream channel, while grasslands and chaparral are found on the walls. This SEA was designated because it supports populations of unarmored three-spine stickleback. The SEA is currently maintained to prevent downstream siltation of the Santa Clara River and provide constant water flows to preserve designated critical habitat for the stickleback. The floodplain is included in the SEA to preserve downstream stickleback habitats. Unfortunately this SEA is considered "severely degraded" and has been encroached upon by nearby residential and commercial developments in the canyon (City of Santa Clarita and Los Angeles County 2004).

- *Valley Oak Savannah (Area #64).* The SEA covers approximately 320 acres and is located west and east of Interstate-5, just south of the Valencia interchange. This area contains one of the last remaining stands of valley oak in the Valley, and it represents the southernmost limit of large, contiguous valley oak savannah in California. The vegetative land cover consists mainly of weed dominated grasslands. Scattered coast live oak occurs throughout the site as well. Construction of the Westridge complex removed some of the habitat from this SEA, although considerable open space set-asides have been provided within and around the periphery of the development.

*Valley Oak*

- *Lyon Canyon (Area #63).* The Lyon Canyon SEA is located in the southwest Valley, west of Interstate-5 and covers approximately 150 acres. This SEA is a relatively narrow canyon that contains both an oak woodland community and a substantial chamisal chaparral community. The oak woodland, found in the southern portion of the SEA, contains both coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*). The northern region contains the chaparral community consisting of sugarbush (*Protea sp*.), *Ceanothus sp.*, black sage (*Salvia mellifera*), mulefat (*Baccharis salicifolia*), and chamise (*Adenostoma fasciculatum*), which is the dominant shrub.

- *Portal Ridge/Liebre Mountain (Area #58).* This SEA is located on the northeastern edge of the Region, in close proximity to the Mojave Desert, the San Gabriel Mountains, and Tehachapi Foothills. This SEA is a transition area between desert, foothill, and montane environments. Foothill woodland, an uncommon plant community, occurs only in this area of Los Angeles County. The lower slope areas of the SEA are vegetated by southern oak woodland, valley grassland, riparian woodland, and coastal sage scrub. Higher slopes and ridge tops in this SEA are covered by chaparral and yellow-pine forest. North-facing slopes, which are under desert influences have pinyon-juniper woodland habitat. Joshua tree woodland and sagebrush scrub cover the lower desert hillsides. This area is considered valuable because it possesses a concentrated diversity of vegetation types.

- *Tehachapi Foothills (Area #59).* This area is in the northernmost tip of the Region. The grassy, south-facing slopes of this area are considered some of the best wildflower sites in Southern California. The area is located at the junction of the Mojave Dessert, transverse ranges, and the Tehachapi Mountains and possesses plants and wildlife for each of these environments. Characteristic plan species include buttercup, poppy, owl's clover, and many species of sunflower.

- *Kentucky Springs (Area #61).* This SEA is located in the eastern edge of the Region. This SEA contains what is considered to be the best stand of great basin sage (*Artemisia tridentata*) remaining in Los Angeles County and one of the best in Southern California. This stand supports a distinct subspecies of great basin sage (*A. t. parishii*).

(Los Angeles County 2006, Santa Clarita 1999, City of Santa Clarita and Los Angeles County 2004)

## 2.5 Social and Cultural Characteristics

### 2.5.1 Demographics and Population

#### 2.5.1.1 Los Angeles County

The County is a diverse and thriving region. Based on 2005 American Community Survey General Demographics Statistics (http://planning.lacounty.gov/doc/stat/LA_PopulationEthnicity.pdf), the County had a total population of approximately 9.8 million people. In the County approximately 51 percent are white, while Hispanics (or Latino of any race) represent the largest minority community with 47 percent of the total as of 2005. Asians and African Americans represent about 13 percent and 9 percent of the County population, respectively.

#### 2.5.1.2 Santa Clarita Valley

The Valley is one of the fastest growing areas of the County. According to the *Santa Clarita Valley General Plan Technical Background Report* (City of Santa Clarita and County of Los Angeles 2004), from 1990 to 2000, the average annual growth rate was 3.4 percent for the Valley compared to 0.7 percent for the County. Figure 2.5-1 depicts the boundaries of the Santa Clarita Valley Planning Area, its census tracts, and relationship to the City of Santa Clarita as well as unincorporated County. As of 2000, approximately 212,000 individuals resided within the Santa Clarita Valley Planning Area. While the Valley may not be as ethnically diverse as the County, the Hispanic, African American, and Asian populations increased as a percentage of the total population from 1990 to 2000. In contrast, the White population decreased from 72.8 percent in 1990 to 61.5 percent in 2000. The Valley is much more affluent than the County as a whole or the incorporated City of Santa Clarita. The Valley's average annual household income in 2000 was $83,901 with the unincorporated areas of the Valley driving the household income higher for the Valley ($89,302 in 2000). For population, household, and employment projections in the Valley, please see Table 2.5-1 (City of Santa Clarita and County of Los Angeles 2004). The unincorporated County areas are anticipated to grow at particularly high rates in all categories, while more moderate rates are anticipated for the City of Santa Clarita.

### 2.5.1.3 City of Santa Clarita

*City of Santa Clarita Residential Development*

The City of Santa Clarita's population was 162,900 in 2003, and falls into the category of one of the ten largest cities within the County. However, Santa Clarita differs from the rest of the County in general in almost every statistic. According to the City's website (http://www.santa-clarita.com), while the growth rate of the County was 1.7 percent as of 2003, Santa Clarita saw a higher population growth rate of 3 percent. During the 1990's the City of Santa Clarita's population grew by 35.5 percent. The mix of the City's population is not as diverse as the County's population. Based on 2005 American Community Survey General Demographics Statistics, close to 70 percent of Santa Clarita's population describes itself as White. Approximately 27 percent of the City of Santa Clarita's population is Hispanic compared to approximately 47 percent of the County. Santa Clarita is a more affluent city compared to the County as a whole. The 2005 median household income for Santa Clarita was estimated at $74,759. In comparison, the median household income for the County was estimated at $48,248. (Source: City of Santa Clarita, 2004 estimates, http://www.santa-clarita.com/cityhall/cd/ed/community_profile /demographics.asp). Table 2.5-1 shows projections regarding the City's population growth, employment growth, and household growth.

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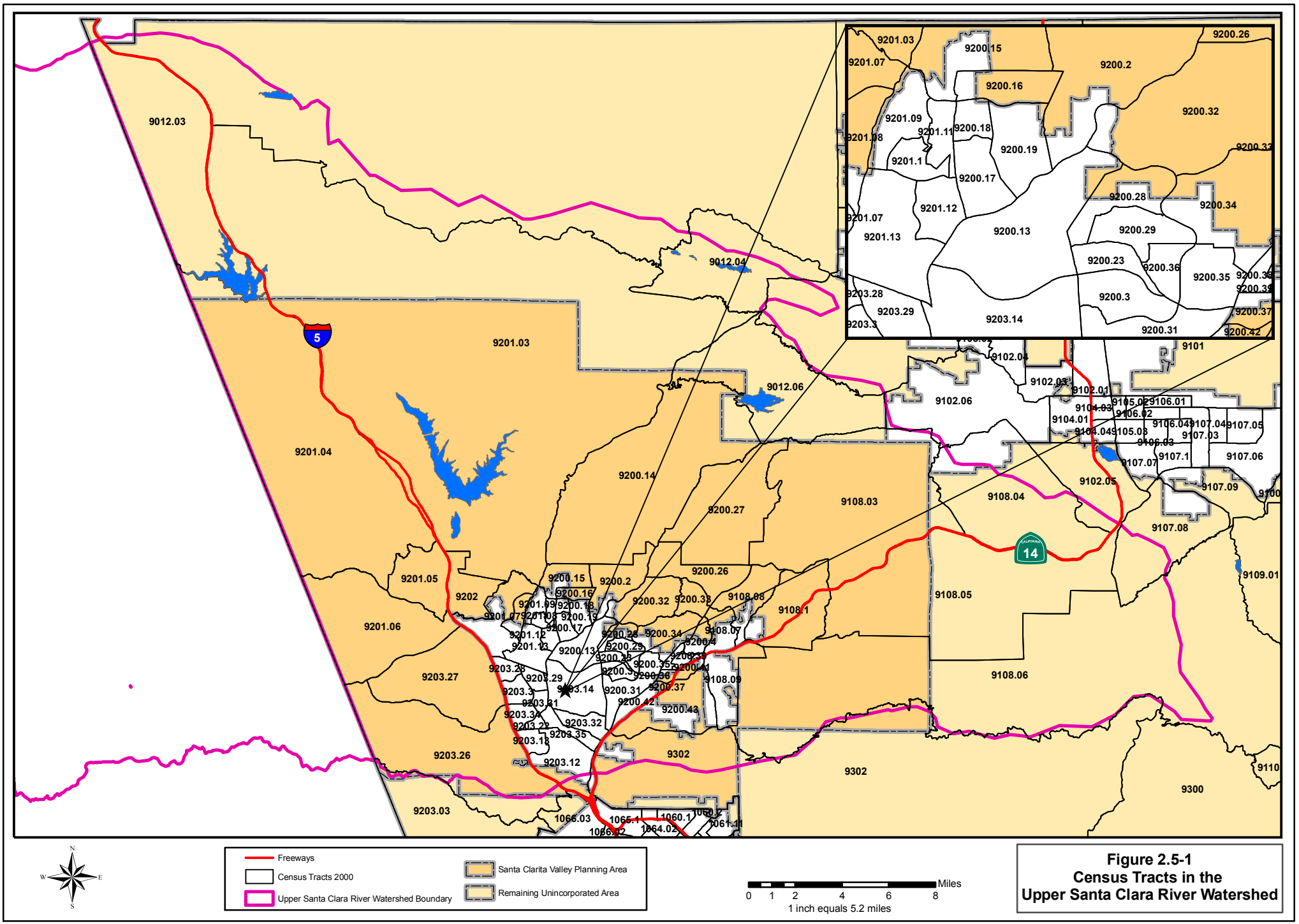
Freeways
Census Tracts 2000
Upper Santa Clara River Watershed Boundary
Santa Clarita Valley Planning Area
Remaining Unincorporated Area
Miles
0 1 2 4 6 8
1 inch equals 5.2 miles
Figure 2.5-1
Census Tracts in the
Upper Santa Clara River Watershed

**TABLE 2.5-1**
**ADJUSTED SANTA CLARITA VALLEYWIDE GENERAL PLAN[a,b]**
**(SCAG 2004 RTP, PROJECTS: YEARS 2000 TO 2030)**

| Jurisdiction | 2000 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | Change | Average Annual Growth |
|---|---|---|---|---|---|---|---|---|---|
| *City of Santa Clarita* | | | | | | | | | |
| Population | 151,088 | 171,290 | 196,680 | 210,280 | 222,290 | 232,830 | 242,620 | 91,532 | 1.6% |
| Households | 50,787 | 55,614 | 62,837 | 67,832 | 72,883 | 77,868 | 82,806 | 32,019 | 1.6% |
| Employment | 51,380 | 59,640 | 68,820 | 73,240 | 77,490 | 81,460 | 85,190 | 33,810 | 1.7% |
| ***Jobs/Households ratio*** | *1.01* | *1.07* | *1.10* | *1.08* | *1.06* | *1.05* | *1.03* | *0.02* | |
| ***Persons per Household*** | *2.97* | *3.08* | *3.13* | *3.10* | *3.05* | *2.99* | *2.93* | *-0.04* | |
| *Valley Unincorporated Area* | | | | | | | | | |
| Population | 61,523 | 78,053 | 105,094 | 128,850 | 146,401 | 166,557 | 185,589 | 124,066 | 3.7% |
| Households | 17,973 | 20,645 | 28,108 | 34,609 | 41,154 | 47,941 | 54,630 | 36,657 | 3.8% |
| Employment (estimated) | 10,790 | 13,900 | 18,830 | 23,190 | 27,980 | 33,080 | 38,240 | 27,450 | 4.3% |
| ***Jobs/Households ratio*** | *0.60* | *0.67* | *0.67* | *0.67* | *0.68* | *0.69* | *0.70* | *0.10* | |
| ***Persons per Household*** | *3.42* | *3.78* | *3.74* | *3.64* | *3.56* | *3.47* | *3.40* | *-0.03* | |
| *Valley Planning Area* | | | | | | | | | |
| Population | 212,611 | 249,343 | 301,774 | 336,130 | 368,691 | 399,387 | 428,209 | 215,598 | 2.4% |
| Households | 68,760 | 76,259 | 90,945 | 102,441 | 114,037 | 125,809 | 137,436 | 68,676 | 2.3% |
| Employment (estimated) | 62,170 | 73,540 | 87,560 | 96,430 | 105,470 | 114,540 | 123,430 | 61,260 | 2.3% |
| ***Jobs/Households ratio*** | *0.90* | *0.96* | *0.96* | *0.94* | *0.92* | *0.91* | *0.90* | *-0.01* | |
| ***Persons per Household*** | *3.09* | *3.27* | *3.32* | *3.28* | *3.23* | *3.17* | *3.12* | *0.02* | |

Notes:
Source: Stanley R. Hoffman Associates, Inc.; Southern California Association of Governments, 2004 Regional Transportation Plan (RTP). The SCAG population and household projections are used as control totals for the entire "One Valley, One Vision" (OVOV) planning area while the allocation between the City and unincorporated areas is based on 2000-2003 Department of Finance (DOF) population and household trend data. The 1998-2003 Employment Development Department data is used to calibrate the 2005 base year for employment. However, the employment totals for the unincorporated area are allowed to exceed SCAG RTP 2004 forecast based on local information from the County of Los Angeles Planning staff.
2000 Population and Household data is based on DOF estimates benchmarked to the 2000 U.S. Census Figures.
The Santa Clarita Valley Planning Area estimates are the sum of the City and unincorporated areas.
On May 11, 2005, the OVOV Team agreed to use these adjusted RTP data for the OVOV General Plan Update.

### 2.5.1.4 Unincorporated Areas of Watershed

To some extent, the outermost unincorporated areas of the watershed overlap with the Santa Clarita Valley Planning Area described in the Technical Background Report for the OVOV project (City of Santa Clarita and County of Los Angeles 2004). However, it appears that the planning area identified in that report does not reach the far eastern and northern portions of the watershed (see Figure 2.5-1). Unincorporated areas of the watershed are likely best characterized by summarizing 2000 Census data (see Table 2.5-2). From evaluation of five (5) census tracts located outside the Santa Clarita Valley Planning Area, but within the watershed,

these areas are generally sparsely populated, rural communities of non-Hispanic white individuals. The total population of these five (5) census tracts is approximately 13,000 people. Hispanics are the largest minority population in the outlying areas, but exist in relatively low percentages compared to the City of Santa Clarita and the County. Median household income for these census tracts ranges from approximately $40,391 to $75,503.

**TABLE 2.5-2**
**DEMOGRAPHICS OF OUTLYING AREAS OF WATERSHED (CENSUS 2000)**

| Census Tract | Total Number of Households | Total Population | Median Household Income | Percentage (%): Total Non- Hispanic/Hispanic/ White/Other Races |
|---|---|---|---|---|
| 9201.03 | 941 | 2,861 | $51,080 | 74/ 26/ 61/ 13 |
| 9012.06 | 430 | 1,182 | $75,503 | 89/ 11/ 80/ 9 |
| 9012.04 | 807 | 2,408 | $40,391 | 84/ 16/ 77/ 7 |
| 9012.03 | 555 | 1,467 | $40,391 | 86/ 15/ 76/ 10 |
| 9108.05 | 1,673 | 5,074 | $64,750 | 87/ 13/ 81/ 6 |

Source: Census 2000

Note: These five census tracts were included in the Region and analyzed in this section because the majority of their areas fell outside of the Santa Clarita Valley Planning Area boundary, but within the overall watershed boundary. Census tracts with the majority of their areas within the Santa Clarita Valley Planning Area were included in the Santa Clarita Valley analysis above. Those census tracts which partially fell within the watershed boundary, but with most of their areas beyond the watershed boundary, were not included in any of the analyses above and were not considered part of the Region.

## 2.5.2 Economic Factors

### 2.5.2.1 Los Angeles County

According the economic indicators located on the County's website, the County has a labor force of approximately 4.8 million with an estimated 4 million of those individuals working wage and salary jobs as of 2004. The unemployment rate was estimated at about 5.3 percent for that year and the poverty rate in 2005 was estimated at 13.9 percent. Services, retail and wholesale trade, and manufacturing dominate the County's employment sectors, collectively representing approximately 70 percent of jobs. Construction, mining, transportation, and public administration, are major sectors comprising the other 30 percent.

### 2.5.2.2 Santa Clarita Valley

The dominant job sectors in the Valley include services, retail trade and manufacturing, which accounted for 54 percent of the job growth in the area from 1992 to 2000 (City of Santa Clarita and County of Los Angeles 2004). The rate of job growth during that period far outpaced Los Angeles County. Total employment grew by 49.4 percent from 1992 to 2000 while in the County total employment grew by only 8.5 percent. The unincorporated County areas of the Valley saw the highest numbers over the City of Santa Clarita. The Valley has a higher percentage of jobs in the agriculture and mining, construction, manufacturing, and retail trade sectors than the rest of the County, and is becoming a significant employment center for the County.

#### 2.5.2.3 City of Santa Clarita

Although the City of Santa Clarita's unemployment rate peaked in 1993 at 4.8 percent, it has consistently been in the 2.5 percent to 4.0 percent range. The poverty rate in Santa Clarita is also substantially lower than the County with an estimated 4.9 percent of families living in poverty as of 2003. In that same year, approximately 14.7 percent of families were living in poverty in the County. However, increasing housing costs are recognized as a potential problem, with some households paying a high percentage of their income toward housing or households with limited resources living in smaller housing units or sharing housing.

#### 2.5.2.4 Unincorporated Areas of Watershed

Employment and economic factors are difficult to succinctly summarize for these areas. The projections from the *Santa Clarita Valley Technical Background Report* would apply to most of the Watershed. However, 2000 Census data for five census tracts that lie outside of the Santa Clarita Valley Planning Area, but within the Watershed, best describes these outlying areas (see Table 2.5-3). There are many different job sectors within which individuals are employed and there is a range of incomes. Yet overall, these areas can be characterized as affluent as previously indicated and the major job sectors include construction, retail trade, educational, health, and social services, and manufacturing.

**TABLE 2.5-3**
**JOB SECTORS, UNEMPLOYMENT RATES, AND TOTAL POPULATIONS OF OUTLYING AREAS OF WATERSHED**

| Census Tract | Major Job Sectors | Unemployment Rate (%) | Total Population |
|---|---|---|---|
| 9201.03 | Construction, Retail Trade, Educational, health, and social services | 3.2 | 2,861 |
| 9012.06 | Construction, Manufacturing, Educational, health, and social services | 1.3 | 1,182 |
| 9012.04 | Construction, Manufacturing, Education, health, and social services | 3.0 | 2,408 |
| 9012.03 | Construction, Manufacturing, Education, health, and social services | 3.9 | 1,467 |
| 9108.05 | Construction, Professional/scientific/management/administrative, Manufacturing | 3.0 | 5,074 |

Source: Census 2000

Note: These five census tracts were included in the Region and analyzed in this section because the majority of their areas fell outside of the Santa Clarita Valley Planning Area boundary, but within the overall watershed boundary. Census tracts with the majority of their areas within the Santa Clarita Valley Planning Area were included in the Santa Clarita Valley analysis above. Those census tracts which partially fell within the watershed boundary, but with most of their areas beyond the watershed boundary, were not included in any of the analyses above and were not considered part of the Region.

### 2.5.3 Disadvantaged Communities

As defined by DWR, a disadvantaged community is a municipality, including, but not limited to a city, town or county, or a reasonably isolated and divisible segment of a larger municipality, that has an average median household income (MHI) that is less than 80 percent of the statewide annual median household income. None of the communities within the geographic areas

described above including the County, the City of Santa Clarita, the Valley, and the outlying areas of the watershed meet this standard. All areas had reported average median household incomes greater than 80 percent of the statewide annual median household income, according to Census 2000 data. In 2000, 80 percent of the state of California's MHI was $37,994 (MHI=$47,493). The County had a reported MHI of $42,189 that year. The City of Santa Clarita had a reported MHI of $66,717 in 2000; the Santa Clarita Valley Planning area had a reported average annual household income of $83,900 (City of Santa Clarita and County of Los Angeles 2004). While no disadvantaged communities that met the strict state definition were identified, both the City of Santa Clarita and the County have identified areas where particular outreach efforts are merited, due either to substandard infrastructure, substandard housing, or similar concerns. These outreach efforts are detailed in Section 8 of this IRWMP.

### 2.5.4 Social and Cultural Values

One vision of the Valley for the next two decades is a young but maturing network of communities balancing rural and suburban neighborhoods, with areas that offer urban lifestyles. The Valley is a mosaic of family-oriented communities, each with individual identities, yet unified by a common environmental setting, a vibrant economy, a rich history, and a high quality of life. The Valley provides residents varied housing opportunities and offers multiple employment opportunities that result in a dynamic economy and appropriate job-housing balance. It also offers residents a broad range of quality employment opportunities. The Valley has developed excellent public services, all of which support a high quality of life.

*Melody Ranch Motion Picture Studio*

The communities of the Valley include Castaic, Val Verde, Valencia, Saugus, and Newhall. They have a lot of character and history, and they each have their own unique identities. However, common threads throughout these communities include the results of the influence of the old West on the area. These communities were mostly characterized as rustic and rural, and were ranching or mining communities that still maintain pride in those traditions. The influence of motion picture filming has been noted especially in Newhall with the use of Melody Ranch in movie making. The natural setting of the Valley, including its open space and surrounding canyons and trees, is closely associated with the identities of these communities according to residents. Valencia, while considered the most urban of these communities, still maintains a rural sense of place without the trappings of a large metropolitan area. All are characterized as tight-knit and family-oriented and supportive of a high quality of life (City of Santa Clarita 2002).

Unincorporated areas in the upper parts of the watershed (tributary canyon areas, Acton, Agua Dulce) tend to be rural in character, with large lot sizes. Many properties have small ranching or farming operations, and include equestrian properties. Agua Dulce has a private small general aviation airport - the only such facility located in the Upper Santa Clara River Watershed.

## 2.6 Water Supply

This section describes the water resources available to the Region through 2030. The sources are as summarized in Table 2.6-1[4,5,6] and discussed in more detail below. Both the currently available and planned supplies are discussed.

As used in this IRWMP, dry years are those years when supplies are the lowest, which occurs primarily when precipitation is lower than the long-term average precipitation. The impact of low precipitation in a given year on a particular supply may differ based on how low the precipitation is, or whether the year follows a high-precipitation year or another low-precipitation year. For the SWP, a low-precipitation year may or may not affect supplies, depending on how much water is in SWP storage at the beginning of the year. Also, dry conditions can differ geographically. For example, a dry year can be local to the Region (thereby affecting local groundwater replenishment and production), local to northern California (thereby affecting SWP water deliveries), or statewide (thereby affecting both local groundwater and the SWP). When the term "dry" is used in this IRWMP, statewide drought conditions are assumed, affecting both local groundwater and SWP supplies at the same time.

### 2.6.1 Groundwater

This section presents information about the Region's groundwater supplies, including a summary of the adopted Assembly Bill (AB) 3030 Groundwater Management Plan (CLWA 2003a). DWR delineates two groundwater basins in the Santa Clara River Floodplain: Acton Valley Basin and Santa Clara River Valley Basin, but locally additional groundwater areas are recognized:

- Acton Valley Groundwater Basin
  - Agua Dulce Groundwater Basin

[4] In February 2006, the California Water Impact Network and Friends of the Santa Clara River ("petitioners") filed a lawsuit challenging the adequacy of the 2005 Urban Water Management Plan ("2005 UWMP") on multiple grounds, *California Water Impact Network v. Castaic Lake Water Agency* (Los Angeles County Superior Court). Petitioners' main arguments were that the 2005 UWMP allegedly overstated the reliability of both groundwater and surface water supplies, failed to provide an adequate discussion of perchlorate contamination, failed to adequately address the reliability of the 1999 SWP Table A permanent transfer of 41,000 AFY from Wheeler Ridge-Maricopa Water Storage District to CLWA, relied on a flawed model for predicting SWP deliveries, failed to address the effect of global warming and regulatory water quality controls on water deliveries from the SWP, and failed to identify the impact of private wells on the Santa Clarita River watershed. On August 22, 2007, Judgment was entered in favor of CLWA and the purveyors. On October 19, 2007, the Petitioners appealed this Judgment to the 2nd District Court of Appeal. In the meantime, the 2005 UWMP must be assumed legally adequate, unless and until it is set aside by a court of competent jurisdiction. (Water Code § 10651; *Barthelemy v. Chino Basin Water Dist.* (1995) 38 Cal. App.4th 1607, 1609 [agency actions are presumed to comply with applicable law, until proof is presented to the contrary].) That has not occurred.

[5] CLWA's approval of its 2002 Groundwater Banking Project with the Semitropic Water Storage Districts Groundwater Banking Program and CLWA's negative declaration for the project was challenged under the California Environmental Quality Act ("CEQA") by California Water Impact Network and Friends of the Santa Clara River ("petitioners") first in the Ventura County Superior Court, *California Water Impact Network v. Castaic Lake Water Agency* (Ventura County Superior Court) ("*Ventura Action*."). The trial court in the Ventura Action found that CLWA's approval of the project and its negative declaration did not violate CEQA, and entered judgment in favor of CLWA. The Judgment was upheld by the Court of Appeal, Second Appellate District and the litigation has ended.

[6] In November 2006, a complaint and petition for writ of mandate seeking to set aside CLWA's certification of its Environmental Impact Report ("EIR") for the 2006 Water Acquisition Project with Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District Banking and Recovery Program was filed by California Water Impact Network in the Los Angeles County Superior Court. In November 2007, the trial court filed its Statement of Decision finding that in certifying the EIR and approving the project CLWA proceeded in a manner required by law, and that its actions were supported by substantial evidence. Judgment was entered in favor of CLWA in December 2007. Petitioners filed a notice of appeal of the Judgment in January 2008. This appeal is pending.

**TABLE 2.6-1**
**PROJECTED WATER SUPPLIES IN THE REGION (AFY)[a]**

| Water Supply Sources | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| *Existing Supplies* | | | | | | |
| Wholesale (Imported) | *73,280* | *87,660* | *89,660* | *90,280* | *92,280* | *92,280* |
| SWP Table A Supply (CLWA)[b] | 65,700 | 67,600 | 69,500 | 71,400 | 73,300 | 73,300 |
| SWP Table A Supply (AVEK)[b] | 2,900 | 3,000 | 3,100 | 3,200 | 3,300 | 3,300 |
| Buena Vista-Rosedale[c] | 0 | 11,000 | 11,000 | 11,000 | 11,000 | 11,000 |
| Flexible Storage Account (CLWA)[d] | 4,680 | 4,680 | 4,680 | 4,680 | 4,680 | 4,680 |
| Flexible Storage Account (Ventura County)[d][e] | 0 | 1,380 | 1,380 | 0 | 0 | 0 |
| Local Supplies[h] | *74,000* | *80,000* | *80,000* | *80,000* | *80,000* | *80,000* |
| Acton Groundwater | 34,000 | 34,000 | 34,000 | 34,000 | 34,000 | 34,000 |
| East Subbasin-Alluvial Aquifer | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 | 35,000 |
| East Subbasin-Saugus Formation | 5,000 | 11,000 | 11,000 | 11,000 | 11,000 | 11,000 |
| Recycled Water | *1,700* | *1,700* | *1,700* | *1,700* | *1,700* | *1,700* |
| **Total Existing Supplies** | **148,980** | **169,360** | **171,360** | **171,980** | **173,980** | **173,980** |
| *Existing Banking Programs*[d] | | | | | | |
| Semitropic Water Bank[f] | 50,870 | 50,870 | 0 | 0 | 0 | 0 |
| Rosedale-Rio Bravo | 0 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| **Total Existing Banking Programs** | **50,870** | **70,870** | **20,000** | **20,000** | **20,000** | **20,000** |
| *Planned Supplies* | | | | | | |
| Local Supplies | *0* | *10,000* | *10,000* | *20,000* | *20,000* | *20,000* |
| Restored wells (Saugus Formation) | 0 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |
| New Wells (Saugus Formation) | 0 | 0 | 0 | 10,000 | 10,000 | 10,000 |
| Recycled Water [g] | 0 | 0 | 1,600 | 6,300 | 11,000 | 15,700 |
| **Total Planned Supplies** | **0** | **10,000** | **11,600** | **26,300** | **31,000** | **35,700** |
| *Planned Banking Programs*[d] | | | | | | |
| Additional Planned Banking | 0 | 0 | 20,000 | 20,000 | 20,000 | 20,000 |
| **Total Planned Banking Programs** | **0** | **0** | **20,000** | **20,000** | **20,000** | **20,000** |

Source: CLWA 2005. Urban Water Management Plan Table 3-1 and personal communication J. Ford, CLWA, 2007.

Notes:

(a) The values shown under "Existing Supplies" and "Planned Supplies" are supplies projected to be available in average/normal years. The values shown under "Existing Banking Programs" and "Planned Banking Programs" are either total amounts currently in storage, or the maximum capacity of program withdrawals.

(b) SWP supplies are calculated by multiplying the Table A Amounts available to the Region (95,200 AF for CLWA and 141,400 * 3 percent = 4,200 AF for AVEK) by percentages of average deliveries projected to be available, taken from Table 6-5 of DWR's "*Final 2005 State Water Project Delivery Reliability Report*" (May 2005).

(c) CLWA has acquired this supply, primarily to meet the potential demands of future annexations to the CLWA service area. This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water supplies are acquired. Currently proposed annexations have a demand for about 4,000 AFY of this supply which, if approved, would leave the remaining 7,000 AFY available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

(d) Supplies shown are total amounts that can be withdrawn, and would typically be used only during dry years. During an average water year any surplus SWP water not used to meet demand would be used for banking.

(e) Initial term of the Ventura County entities' flexible storage account is ten years (from 2006 to 2015).

(f) Supplies shown are the total amount currently in storage, and would typically be used only during dry years. Once the current storage amount is withdrawn, this supply would no longer be available and in any event, is not available after 2013.

(g) Recycled water supplies based on projections provided in CLWA 2005 Urban Water Management Plan Chapter 4, Recycled Water and is a non-potable water source.

(h) Values provided here are the average of the ranges provided in Table 2.6-1.

- Soledad Canyon Alluvial Channel
- Santa Clara River Valley Basin, East Subbasin
  - Alluvial Aquifer
  - Saugus Aquifer

#### 2.6.1.1 Acton Valley Groundwater Basin

The Acton Valley Groundwater Basin encompasses an area of approximately 12.9 square miles (DWR 2002a). It is bounded by the Sierra Pelona on the north and the San Gabriel Mountains on the south, east and west. It is drained by the Santa Clara River. The Acton Valley Groundwater Basin is an alluvial basin consisting of two water bearing geologic units: the Holocene age undifferentiated alluvium and the Pleistocene age stream terrace deposits. Groundwater in these deposits is unconfined.

##### *2.6.1.1.1 Hydrogeology*

Alluvial deposits are encountered in the town of Acton and its vicinity, and along upper Soledad Canyon, beginning just southwest of Soledad Pass. They are thickest in the Santa Clara River channel, and reach their maximum thickness of 225 feet near Acton, thinning east and west of the town. Alluvial deposits consist of unconsolidated, poorly bedded, poorly sorted to sorted sand, gravel, silt and clay with some cobbles and boulders. Specific yield in the alluvium ranges from ten to 19 percent (DWR 2002a).

Terrace deposits occur in the northern part of the basin, north of Acton, where they reach the maximum thickness of 210 feet (Slade 1990). They consist of crudely stratified, poorly consolidated, only locally cemented, angular to subangular detritus of local origin (DWR 2002a). Specific yield in terrace deposits ranges from three to five percent (DWR 2002a).

The Acton Valley Groundwater Basin is transected by numerous faults. Three of the principal faults are the northwest-trending Kashmere Valley and Acton faults, and the northeast-trending Soledad fault system. The geologic history and seismic activity of these faults are not known. Although these faults offset the basement rocks, they have not been shown to offset younger alluvial and terrace deposits (UWCD and CLWA 1996). No groundwater measurements data are available to determine whether these faults form barriers to groundwater flow in the basement complex. DWR does not consider these faults to be barriers to groundwater flow in the alluvium (DWR 1993).

##### *2.6.1.1.2 Groundwater Flow*

The groundwater within the basin flows toward the channel of the Santa Clara River. It then flows in the southwest direction toward Soledad Canyon at an average gradient of 64 to 91 feet per mile. The gradient varies seasonally, with the lowest gradient during dry seasons, and the highest during wet seasons. The Soledad Canyon forms the only outlet for groundwater underflow and for surface water outflow from the basin.

##### *2.6.1.1.3 Recharge (Replenishment) Areas*

The basin is recharged largely by deep percolation of direct rainfall and rainfall runoff captured in the Acton Valley, Santa Clara River and its tributaries. Deep percolation of water from

excessive irrigation of lawns and agricultural areas, and from private onsite septic tanks and leachfield systems, provide additional amounts of replenishment (UWCD and CLWA 1996; DWR 2002a).

#### *2.6.1.1.4 Groundwater Quantity*

The total storage capacity of the basin is estimated at approximately 40,000 to 45,000 acre-feet (AF) (UWCD and CLWA 1996; DWR 2002a). Historically, the estimated amount of groundwater in storage ranged from 14,883 AF for a relatively dry period (1965) to 34,395 AF for a relatively wet period (1945) (UWCD and CLWA 1996). There are several water-supply wells that extract groundwater from the alluvium at rates greater than 100 gallons per minute (gpm), and numerous small-volume domestic water supply wells scattered throughout the basin region. The major water pumpers are the Los Angeles County Water Works District No. 37 (LACWWD No. 37), Acton Camp, a trailer park, and a few large private wells installed in the southern part of the basin (UWCD and CLWA 1996). Since 2000, LACWWD No. 37 pumping has ranged between 977 and 2,118 AFY.

Historical groundwater elevations within the main alluvial channel of the Upper Santa Clara River have ranged from about 2,570 feet above mean sea level (AMSL) at Acton Camp to 2,997 feet AMSL in the northern portion of the basin during a relatively dry hydrologic period (1964-65), and from 2,616 feet AMSL at Acton Camp to 3,085 feet at the Vincent Fire Station during the 1984-85 wet period (UWCD and CLWA 1996, Slade 1990). In general, groundwater levels declined during the 1950s through the mid 1970s, rose during the late 1970s to the mid 1980s, and continued to decline after the 1980s (Slade 1990).

### 2.6.1.2 Agua Dulce Groundwater Basin

Although not formerly recognized as a groundwater basin by DWR until 2003, and then only as a portion of the Acton Valley Groundwater Basin, the Agua Dulce groundwater basin consists of potentially water-bearing alluvial type sediments over an area of approximately 4,620 acres within Sierra Pelona Valley (Slade 2004).

### 2.6.1.3 Soledad Canyon Alluvial Channel

The Soledad Canyon Alluvial Channel is approximately nine miles long. It is bordered by the Acton Valley Groundwater Basin on the east, and by the Santa Clara River Valley Groundwater Basin on the west (UWCD and CLWA 1996). DWR does not designate the Soledad Canyon Alluvial Channel as a groundwater basin. The water-bearing formation of the Soledad Canyon Alluvial Channel consists of alluvium deposited in the Santa Clara River bed. Twenty-one (21) private water-supply wells extract groundwater throughout the channel. Groundwater extraction data, groundwater storage, and yield data are not currently available (UWCD and CLWA 1996).

### 2.6.1.4 Santa Clara River Valley East Subbasin

The groundwater basin generally beneath the Valley is identified in DWR's Groundwater Bulletin 118 as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin No. 4-4.07). The Santa Clara River Valley East Groundwater Subbasin encompasses an area of approximately 103 square miles (DWR 2002b). It is bordered by the Piru Mountains on the north, on the west by impervious rocks of the Modelo and lower Saugus Formations, and a constriction in the alluvium, by the San Gabriel Mountains on the south and east, and by the

Santa Susana Mountains on the south. It is drained by the Santa Clara River, Bouquet Creek, and Castaic Creek (DWR 2002b).

#### *2.6.1.4.1 Hydrogeology*

The Santa Clara River Valley East Groundwater Subbasin consists of two aquifer systems, which are the Alluvium associated with the Santa Clara River and it tributaries and the Saugus Formation. There are also some scattered outcrops of Terrace deposits in the basin that likely have the capacity to contain limited amounts of groundwater. However, since these Terrace deposits are located in limited areas that are situated at elevations above the regional water table and are also of limited thickness, they are of no practical significance as aquifers and have consequently not been developed for water supply.

The Holocene age Alluvium consists of stream channel and flood plain deposits of the Santa Clara River and its tributaries. Alluvial deposits generally form a relatively thin veneer of sediments toward the eastern and western boundaries of the basin. A maximum thickness of about 200 feet along the center of the present river channel is reported near Saugus (CLWA 2003a). The Alluvium is the most permeable of the aquifer units, with transmissivity values in the range of 50,000 to 500,000 gallons per day per foot (gpd/ft), based on well yields and aquifer testing, with the higher values where the Alluvium is thickest in the center of the valley and generally west of Bouquet Canyon (Slade 1986 and 2002).

The Saugus Formation is divided into two stratigraphic units; the geologically older Sunshine Ranch member (of mixed marine to terrestrial origin) and the upper portion (entirely of terrestrial origin). The Sunshine Ranch member has a maximum thickness of 3,000 to 3,500 feet in the central valley; however, it is not considered a viable source of groundwater supply due to its marine origin and fine-grained nature. The upper portion is of coarser grain consisting of lenticular beds of sandstone and conglomerate and lesser amounts of sandy mudstone. The sand and gravel units of the upper portion are generally located at depths between 300 and 2,500 feet. Although the Saugus formation is thicker and more extensive than the Alluvium, transmissivity values are generally lower (between 80,000 and 160,000 gpd/ft).

#### *2.6.1.4.2 Groundwater Flow*

The groundwater within the Alluvial aquifer flows toward the channel of the Santa Clara River, and then follows the river course southward and westward. Average gradient of groundwater in the alluvium is 46 feet per mile based on the 1985 water level data in the river from the Lang gage to the Ventura County Line. It generally varies from 25 to 55 feet per mile in the subbasin. The gradient varies seasonally, with the lowest gradient during dry seasons, and the highest during wet seasons (UWCD and CLWA 1996).

The groundwater flow in the Saugus aquifer, based on the measurements in the wells screened entirely in the Saugus Formation in the Santa Clara River-South Fork area, is to the north-northwest. There is no data outside of that area (UWCD and CLWA 1996).

#### *2.6.1.4.3 Recharge (Replenishment) Areas*

The subbasin is recharged largely by infiltration of surface water in the Santa Clara River channel and deep percolation of precipitation and runoff in its tributaries. Surface water flows percolate through the alluvial deposits along the stream channels, recharging the Alluvial

aquifer, and the underlying Saugus aquifer. The highland areas surrounding the alluvial valley represent an additional source of recharge through direct precipitation and deep percolation of rainfall on the outcrops of the Saugus Formation (UWCD and CLWA 1996).

#### *2.6.1.4.4 Groundwater Quantity*

##### *2.6.1.4.4.1 Alluvial Aquifer*

The amount of groundwater in storage can vary considerably because of the effects of recharge, discharge, and pumping from the aquifer. The maximum storage capacity of the Alluvium has been estimated to be about 240,000 AF (Slade 1986; Slade 2002). Since the inception of SWP deliveries in 1980, total pumpage from the Alluvium has ranged from a low of about 20,000 acre-feet per year (AFY) (in 1983) to slightly more than 43,000 AFY (in 1999). Over the last two decades there has been a trend of decreasing agricultural pumping and increasing municipal pumping consistent with general land use changes in the area (CLWA 2003a). Since the inception of SWP deliveries, groundwater levels have sustained generally high levels for much of the last 30 years, with two dry-period exceptions (mid 1970s and late 80's-early 90's). There is no evidence of any recent trends toward permanent water level or storage decline.

##### *2.6.1.4.4.2 Saugus Aquifer*

Storage capacity was recently estimated at approximately 1.65 million AF in the upper portion of the Saugus (Slade 2002). Since the inception of SWP deliveries in 1980, total pumpage from the Saugus has ranged from about 3,850 to nearly 15,000 AFY, with an average of 6,900 AFY. A majority of pumping is for municipal supply with an average of about 500 to 1,000 AFY for agricultural use. Limited data exists regarding groundwater levels in the Saugus, however, the existing data indicates that there is no trend toward a sustained decline in water levels or storage indicative of overdraft.

### 2.6.1.5 Adopted AB 3030 Groundwater Management Plan

CLWA prepared a groundwater management plan in accordance with the provisions of Water Code Section 10753, which was originally enacted by AB 3030, for its wholesale service area. The general contents of CLWA's groundwater management plan (GWMP) were outlined in 2002, and a detailed plan was drafted and adopted in 2003. The plan both complements and formalizes a number of existing water supply and water resource planning and management activities in CLWA's service area, which effectively encompasses the East Subbasin of the Santa Clara River Valley Groundwater Basin.

The GWMP contains four management objectives, or goals, for the basin including:
(1) development of an integrated surface water, groundwater, and recycled water supply to meet existing and projected demands for municipal, agricultural, and other water uses;
(2) assessment of groundwater basin conditions to determine a range of operational yield values that use local groundwater conjunctively with supplemental SWP supplies and recycled water to avoid groundwater overdraft; (3) preservation of groundwater quality, including active characterization and resolution of any groundwater contamination problems; and
(4) preservation of interrelated surface water resources, which includes managing groundwater to not adversely impact surface and groundwater discharges or quality to downstream basin(s).

Prior to preparation and adoption of the GWMP, a local MOU process among CLWA, Los Angeles County Waterworks District No. 36 (LACWWD No. 36), NCWD, SCWD, VWC and United Water Conservation District (UWCD) in neighboring Ventura County had initiated local groundwater management, now embodied in the GWMP. In 2001, out of a willingness to seek opportunities to work together and develop programs that mutually benefit the region as well as their individual communities, those agencies prepared and executed the MOU. The agreement is a collaborative and integrated approach to several of the aspects of water resource management included in the GWMP. UWCD manages surface water and groundwater resources in seven groundwater basins, all located in Ventura County, downstream of the East Subbasin of the Santa Clara River Valley (East Subbasin). UWCD is a partner in cooperative management efforts to accomplish the objectives (goals) for the East Subbasin, particularly as they relate to preservation of surface water resources that flow through the respective basins. As a result of the MOU, the cooperating agencies have undertaken the following measures: integration of database management efforts; development of a numerical groundwater flow model for analysis of groundwater basin yield and containment of groundwater contamination; and, monitoring and reporting on the status of East Subbasin conditions, as well as on geologic and hydrologic aspects of the overall stream-aquifer system.

The adopted GWMP includes 14 elements intended to accomplish the East Subbasin management objectives listed above. In summary, the plan elements include:

- Monitoring of groundwater levels, quality, production and subsidence
- Monitoring and management of surface water flows and quality
- Determination of East Subbasin yield and avoidance of overdraft
- Development of regular and dry-year emergency water supply
- Continuation of conjunctive use operations
- Long-term salinity management
- Integration of recycled water
- Identification and mitigation of soil and groundwater contamination, including involvement with other local agencies in investigation, cleanup, and closure
- Development and continuation of local, state and federal agency relationships
- Groundwater management reports
- Continuation of public education and water conservation programs
- Identification and management of recharge areas and wellhead protection areas
- Identification of well construction, abandonment, and destruction policies
- Provisions to update the groundwater management plan

Work on a number of the GWMP elements had been ongoing for some time prior to the formal adoption of the GWMP and continues on an ongoing basis.

### 2.6.1.6 Available Groundwater Supplies

The groundwater component for the East Subbasin groundwater supply in the Region derives from a groundwater operating plan for the East Subbasin developed over the last 20 years to meet water requirements (municipal, agricultural, small domestic) while maintaining the East Subbasin in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). This operating plan also addresses groundwater contamination issues in the East Subbasin, all consistent with both the MOU and the GWMP described above. The groundwater operating plan is based on the concept that pumping can vary from year to year to allow increased groundwater use in dry periods and increased recharge during wet periods and to collectively ensure that the groundwater East Subbasin is adequately replenished through various wet/dry cycles. As described in the MOU and subsequently formalized in the GWMP, the operating yield concept has been quantified as ranges of annual pumping volumes.

The ongoing work of the MOU has produced two formal reports. The first report, dated April 2004, documents the construction and calibration of the groundwater flow model for the Valley ($CH_2M$ Hill 2004a). The second report, dated August 2005, presents the modeling analysis of the purveyors' groundwater operating plan. The primary conclusion of the modeling analysis is that the groundwater operating plan will not cause detrimental short or long term effects to the groundwater and surface water resources in the Valley and is therefore, considered sustainable ($CH_2M$Hill and Luhdorff and Scalmanini 2005).

The groundwater operating plan, summarized in CLWA's 2005 Urban Water Management Plan (UWMP) and Table 2.6-2, is as follows:

- Alluvium: Pumping from the Alluvial Aquifer in a given year is governed by local hydrologic conditions in the eastern Santa Clara River watershed. Pumping ranges between 30,000 and 40,000 AFY during normal and above-normal rainfall years. However, due to hydrogeologic constraints in the eastern part of the subbasin, pumping is reduced to between 30,000 and 35,000 AFY during locally dry years.
- Saugus Formation: Pumping from the Saugus Formation in a given year is tied directly to the availability of other water supplies, particularly from the SWP. During average-year conditions within the SWP system, Saugus pumping ranges between 7,500 and 15,000 AFY. Planned dry-year pumping from the Saugus Formation ranges between 15,000 and 25,000 AFY during a drought year and can increase to between 21,000 and 25,000 AFY if SWP deliveries are reduced for two consecutive years and between 21,000 and 35,000 AFY if SWP deliveries are reduced for three consecutive years. Such high pumping would be followed by periods of reduced (average-year) pumping, at rates between 7,500 and 15,000 AFY, to further enhance the effectiveness of natural recharge processes that would recover water levels and groundwater storage volumes after the higher pumping during dry years.

**TABLE 2.6-2**
**AVAILABILITY OF GROUNDWATER FOR THE REGION**

| | Groundwater Production (AF) | | | |
|---|---|---|---|---|
| **Aquifer** | **Normal Year** | **Dry Year 1** | **Dry Year 2** | **Dry Year 2** |
| East Subbasin | | | | |
| Alluvium | 30,000 to 40,000 | 30,000 to 35,000 | 30,000 to 35,000 | 30,000 to 35,000 |
| Saugus | 7,500 to 15,000 | 15,000 to 25,000 | 21,000 to 25,000 | 21,000 to 35,000 |
| Acton Basin | 34,400 | 14,900 | 14,900 | 14,900 |
| **Total** | **71,900 to 89,400** | **59,900 to 74,900** | **65,900 to 74,900** | **65,900 to 84,900** |

Source: CLWA 2005. UMWP Table 3-6 plus UWCD and CLWA 1996.

Additionally, availability of groundwater from the Acton Groundwater Basin is estimated to range from 14,883 AF for a relatively dry period to 34,395 AF for a relatively wet period (UWCD and CLWA 1996).

Within the Groundwater Operating Plan, three factors affect the availability of groundwater supplies: sufficient source capacity (wells and pumps); sustainability of the groundwater resource to meet pumping demand on a renewable basis; and protection of groundwater sources (wells) from known contamination, or provisions for treatment in the event of contamination. The first two factors are briefly discussed below.

For reference to the Groundwater Operating Plan, recent historical and projected groundwater pumping by the retail water purveyors is summarized in Tables 2.6-3 and 2.6-4, respectively.

The Groundwater Operating Plan recognizes ongoing Alluvial pumping for both municipal and agricultural water supply, as well as other small private domestic and related pumping. This pumping was estimated in CLWA's 2005 UWMP from information submitted by the Santa Clarita Valley Well Owners' Association about the nature and magnitude of private well pumping. This included a detailed estimate of private well pumping in the San Francisquito Canyon portion of the East Subbasin: a total of 85 AFY by 73 individual private pumpers, or nearly 1.2 AFY per private well pumper. As a result of that input, it is now better recognized that total private pumping is likely well within the 500 AFY estimates of small private well pumping in recent annual Water Reports, or about one (1) percent of typical Alluvial Aquifer pumping by the purveyors and other known private well owners (e.g., agricultural pumpers) combined. Thus, while the small private wells are not explicitly modeled in the East Subbasin yield analysis described herein because their locations and operations are not known, their operation creates a pumping stress that is essentially negligible at the scale of the regional model. Ultimately, the intent to maintain overall pumping within the operating plan, including private pumping, will result in sustainable groundwater conditions to support the combination of municipal (purveyor), agricultural, and small private groundwater use on an ongoing basis.

**TABLE 2.6-3**
**HISTORICAL GROUNDWATER PRODUCTION BY THE RETAIL WATER PURVEYORS[a]**

| Basin Name | Groundwater Pumped (AF)[b] | | | | | | |
|---|---|---|---|---|---|---|---|
| Santa Clara River Valley East Subbasin | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
| CLWA Santa Clarita Water Division | *11,529* | *9,896* | *9,513* | *6,424* | *7,146* | *12,408* | *13,156* |
| Alluvium | 11,529 | 9,896 | 9,513 | 6,424 | 7,146 | 12,408 | 13,156 |
| Saugus Formation | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LA County Waterworks District No. 36 | *0* | *0* | *0* | *0* | *380* | *343* | *0* |
| Alluvium | 0 | 0 | 0 | 0 | 380 | 343 | 0 |
| Saugus Formation | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Newhall County Water District | *3,694* | *4,073* | *4,376* | *3,779* | *5,321* | *4,824* | *5,572* |
| Alluvium | 1,508 | 1,641 | 981 | 1,266 | 1,582 | 1,389 | 2,149 |
| Saugus Formation | 2,186 | 2,432 | 3,395 | 2,513 | 3,739 | 3,435 | 3,423 |
| Valencia Water Company | *13,186* | *11,353* | *12,568* | *12,775* | *11,824* | *14,741* | *14,333* |
| Alluvium | 12,179 | 10,518 | 11,603 | 11,707 | 9,862 | 12,228 | 11,884 |
| Saugus Formation | 1,007 | 835 | 965 | 1,068 | 1,962 | 2,513 | 2,449 |
| Total | *28,409* | *25,322* | *26,457* | *22,978* | *24,671* | *32,316* | *33,061* |
| Alluvium | 25,216 | 22,055 | 22,097 | 19,397 | 18,970 | 26,368 | 27,189 |
| Saugus Formation | 3,193 | 3,267 | 4,360 | 3,581 | 5,701 | 5,948 | 5,872 |
| Acton Groundwater Basin | | | | | | | |
| Sierra Pelona Mutual Water Company(c) | NA | 57 | 57 | 57 | 47 | 47 | 47 |
| LA County Waterworks District No. 37 | NA | 2,118 | 1,180 | 977 | 1,008 | 1,587 | 1,759 |

Notes:
(a) From 2007 *Santa Clarita Valley Water Report* (May 2005) and LACWWD No. 37 water records
(b) Pumping for Municipal and industrial uses only. Does not include pumping for agricultural and miscellaneous uses.
(c) Estimate from Slade 2004.

**TABLE 2.6-4**
**PROJECTED GROUNDWATER PRODUCTION (NORMAL YEAR)**

| Basin Name | Range of Groundwater Pumping (AF)[a][b][c] | | | | |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | **2025** | **2030** |
| ***Santa Clara River Valley East Subbasin*** | | | | | |
| CLWA Santa Clarita Water Division | | | | | |
| Alluvium | 6,000-14,000 | 6,000-14,000 | 6,000-14,000 | 6,000-14,000 | 6,000-14,000 |
| Saugus Formation | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| LA County Waterworks District No. 36 | | | | | |
| Alluvium | 0 | 0 | 0 | 0 | 0 |
| Saugus Formation | 500-1,000 | 500-1,000 | 500-1,000 | 500-1,000 | 500-1,000 |
| Newhall County Water District | | | | | |
| Alluvium | 1,500-3,000 | 1,500-3,000 | 1,500-3,000 | 1,500-3,000 | 1,500-3,000 |
| Saugus Formation | 3,000-6,000 | 3,000-6,000 | 3,000-6,000 | 3,000-6,000 | 3,000-6,000 |

| Basin Name | Range of Groundwater Pumping (AF)[(a)(b)(c)] 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|
| Valencia Water Company | | | | | |
| Alluvium | 12,000-20,000 | 12,000-20,000 | 12,000-20,000 | 12,000-20,000 | 12,000-20,000 |
| Saugus Formation | 2,500-5,000 | 2,500-5,000 | 2,500-5,000 | 2,500-5,000 | 2,500-5,000 |
| ***Acton Groundwater Basin*** | | | | | |
| Sierra Pelona Mutual Water Company4 | 47 | 47 | 47 | 47 | 47 |
| LA County Waterworks District No. 375 | 2,700 | 3,100 | 3,500 | 3,900 | 4,400 |

Notes:

(a) The range of groundwater production capability for each purveyor varies based on a number of factors which include each purveyor's capacity to produce groundwater, the location of its wells within the Alluvium and Saugus Formation, local hydrology, availability of imported water supplies and water demands.

(b) To ensure sustainability, the purveyors have committed that the annual use of groundwater pumped collectively in any given year will not exceed the purveyors' operating plan as described in the *Basin Yield Study* and reported annually in the *Santa Clarita Valley Water Report*. As noted in the discussion of the purveyors' operating plan for groundwater in Table 3-6 of the CLWA 2005 UWMP the "normal" year quantities of groundwater pumped from the Alluvium and Saugus Formation are 30,000 to 40,000 AFY and 7,500 to 15,000 AFY, respectively.

(c) Groundwater pumping shown for purveyor municipal and industrial uses only.

(d) Estimate from Slade 2004.

(e) *Acton-Aqua Dulce Conceptual Master Plan for Water Facilities* 2004. Assumes build-out would occur in 2030 with an even growth rate throughout the planning period.

#### *2.6.1.6.1 Alluvium*

Based on a combination of historical operating experience and recent groundwater modeling analysis, the Alluvial Aquifer can supply groundwater on a long-term sustainable basis in the overall range of 30,000 to 40,000 AFY, with a probable reduction in dry years to a range of 30,000 to 35,000 AFY. Both of those ranges include about 15,000 AFY of Alluvial pumping for current agricultural water uses and an estimated pumping of up to about 500 AFY by small private pumpers. The dry year reduction is a result of practical constraints in the eastern part of the basin, where lowered groundwater levels in dry periods have the effect of reducing pumping capacities in that shallower portion of the aquifer (CLWA 2005).

##### *2.6.1.6.1.1 Adequacy of Supply*

For municipal water supply in the Valley, with existing wells and pumps, the three retail water purveyors with Alluvial wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells (not contaminated by perchlorate) of 36,120 gpm, which translates into a current full-time Alluvial source capacity of approximately 58,000 AFY (CLWA 2005). Alluvial pumping capacity from all the active municipal supply wells is summarized in Table 2.6-5. These capacities do not include one Alluvial Aquifer well that has been periodically inactivated due to perchlorate contamination, the SCWD Stadium well. This well represents another 800 gpm of pumping capacity, or full-time source capacity of about 1,290 AFY.

**TABLE 2.6-5**
**ACTIVE MUNICIPAL GROUNDWATER SOURCE CAPACITY —**
**ALLUVIAL AQUIFER WELLS**

| Wells | Pump Capacity (gpm) | Max Annual Capacity (AF) | Normal Year Production[(a)] (AF) | Dry-Year Production (AF) |
|---|---|---|---|---|
| *NCWD* | | | | |
| Castaic 1 | 600 | 960 | 385 | 345 |
| Castaic 2 | 425 | 680 | 166 | 125 |
| Castaic 4 | 270 | 430 | 100 | 45 |
| Pinetree 1 | 300 | 480 | 164 | N/A |
| Pinetree 3 | 550 | 880 | 545 | 525 |
| Pinetree 4 | 500 | 800 | 300 | N/A |
| **NCWD Subtotal** | **2,645** | **4,230** | **1,660** | **1,040** |
| *SCWD* | | | | |
| Clark | 600 | 960 | 782 | 700 |
| Guida | 1,000 | 1,610 | 1,320 | 1,230 |
| Honby | 950 | 1,530 | 696 | 870 |
| Lost Canyon 2 | 850 | 1,370 | 741 | 640 |
| Lost Canyon 2A | 825 | 1,330 | 1,034 | 590 |
| Mitchell 5A | 950 | 1,530 | 400 | 20 |
| Mitchell 5B | 700 | 1,120 | 557 | N/A |
| N. Oaks Central | 1,000 | 1,610 | 822 | 1,640 |
| N. Oaks East | 950 | 1,530 | 1,234 | 485 |
| N. Oaks West | 1,400 | 2,250 | 898 | N/A |
| Sand Canyon | 750 | 1,200 | 930 | 195 |
| Sierra | 1,500 | 2,410 | 846 | N/A |
| **SCWD Subtotal** | **10,525** | **16,920** | **9,860** | **6,350** |
| *VWC* | | | | |
| Well D | 1,050 | 1,690 | 690 | 690 |
| Well E-15 | 1,400 | 2,260 | N/A | N/A |
| Well N | 1,250 | 2,010 | 620 | 620 |
| Well N7 | 2,500 | 4,030 | 1,160 | 1,160 |
| Well N8 | 2,500 | 4,030 | 1,160 | 1,160 |
| Well Q2 | 1,200 | 1,930 | 985 | 985 |
| Well S6 | 2,000 | 3,220 | 865 | 865 |
| Well S7 | 2,000 | 3,220 | 865 | 865 |
| Well S8 | 2,000 | 3,220 | 865 | 865 |
| Well T2 | 800 | 1,290 | 460 | 460 |
| Well T4 | 700 | 1,120 | 460 | 460 |
| Well U4 | 1,000 | 1,610 | 935 | 935 |
| Well U6 | 1,250 | 2,010 | 825 | 825 |
| Well W9 | 800 | 1,290 | 600 | 600 |
| Well W10 | 1,500 | 2,410 | 865 | 865 |
| Well W11 | 1,000 | 1,610 | 350 | 350 |
| **VWC Subtotal** | **22,950** | **36,950** | **11,705** | **11,705** |
| **Total Purveyors** | **36,120** | **58,100[(b)]** | **23,225[(b)]** | **19,095[(b)]** |

Source: CLWA 2005. UWMP Table 3-9.
Notes:
(a) Based on recent annual pumping.
(b) Historically active wells only; capacity will slightly increase by restoration of contaminated wells.

In terms of adequacy and availability, the combined active Alluvial groundwater source capacity of municipal wells is approximately 58,000 AFY. This is more than sufficient to meet the municipal, or urban, component of groundwater supply from the Alluvium, which is currently 20,000 to 25,000 AFY of the total planned Alluvial pumping of 30,000 to 40,000 AFY. The balance of Alluvial pumping in the operating plan is for agricultural and other, including small private, pumping.

**PERCHLORATE**

Ammonium perchlorate is an inorganic chemical that is used in solid rocket propellants, fireworks and explosives.

It interferes with the ability of the thyroid gland to utilize iodine to produce thyroid hormones. Thyroid hormones are needed for normal prenatal and postnatal growth and development in children, and for normal metabolic function in adults.

Since 1997, perchlorate has been found to be a drinking water contaminant in about 284 water sources throughout California. Perchlorate has been found in wells within the Santa Clarita Valley. Local water agencies have developed a groundwater cleanup plan for perchlorate.

*2.6.1.6.1.2 Sustainability*

Until recently, the long-term renewability of Alluvial groundwater was empirically determined from approximately 60 years of recorded experience. Generally, it consists of long-term stability in groundwater levels and storage, with some dry period fluctuations in the eastern part of the Subbasin, over a historical range of total Alluvial pumpage from as low as about 20,000 AFY to as high as about 43,000 AFY. Those empirical observations have now been complemented by the development and application of a numerical groundwater flow model, which has been used to predict aquifer response to the planned operating ranges of pumping. The numerical groundwater flow model has also been used to analyze the control of perchlorate contaminant migration under selected pumping conditions that would restore, with treatment, pumping capacity inactivated due to perchlorate contamination detected in some wells in the Subbasin.

To examine the yield of the Alluvium or, the sustainability of the Alluvium on a renewable basis, the groundwater flow model was used to examine the long-term projected response of the aquifer to pumping for municipal and agricultural uses in the 30,000 to 40,000 AFY range under average/normal and wet conditions, and in the 30,000 to 35,000 AFY range under locally dry conditions. To examine the response of the entire aquifer system, the model also incorporated pumping from the Saugus Formation in accordance with the normal (7,500 to 15,000 AFY) and dry year (15,000 to 35,000 AFY) operating plan for that aquifer. The model was run over a 78-year hydrologic period, which was selected from actual historical precipitation to examine a number of hydrologic conditions expected to affect both groundwater pumping and groundwater recharge. The selected 78-year simulation period was assembled from an assumed recurrence of 1980 to 2003 conditions, followed by an assumed recurrence of 1950 to 2003 conditions. The 78-year period was analyzed to define both local hydrologic conditions (normal and dry), which affect the rate of pumping from the Alluvium, and hydrologic conditions that affect SWP operations, which in turn affect the rate of pumping from the Saugus. The resultant simulated pumping cycles included the distribution of pumping for each of the existing Alluvial Aquifer wells, for normal and dry years respectively, as shown in Table 2.6-2.

Simulated Alluvial Aquifer response to the range of hydrologic conditions and pumping stresses is essentially a long-term repeat of the historical conditions that have resulted from similar pumping over the last several decades. The resultant response consists of: (1) generally constant groundwater levels in the middle to western portion of the Alluvium and fluctuating groundwater levels in the eastern portion as a function of wet and dry hydrologic conditions; (2) variations in recharge that directly correlate with wet and dry hydrologic conditions; and (3) no long-term decline in groundwater levels or storage. The Alluvial Aquifer is considered a

sustainable water supply source to meet the Alluvial portion of the operating plan for the groundwater subbasin. This is based on the combination of actual experience with Alluvial Aquifer pumping at capacities similar to those planned for the future and the resultant sustainability (recharge) of groundwater levels and storage, and further based on modeled projections of aquifer response to planned pumping rates that also show no depletion of groundwater.

#### *2.6.1.6.2 Saugus Formation*

Based on historical operating experience and extensive recent testing and groundwater modeling analysis, the Saugus Formation can supply water on a long-term sustainable basis in a normal range of 7,500 to 15,000 AFY, with intermittent increases to 25,000 to 35,000 AF in dry years. The dry-year increases, based on limited historical observation and modeled projections, demonstrate that a small amount of the large groundwater storage in the Saugus Formation can be pumped over a relatively short (dry) period. This would be followed by recharge (replenishment) of that storage during a subsequent normal-to-wet period when pumping would be reduced.

##### *2.6.1.6.2.1 Adequacy of Supply*

For municipal water supply with existing wells, the three retail water purveyors with Saugus wells (NCWD, SCWD, and VWC) have a combined pumping capacity from active wells (not contaminated by perchlorate) of 14,900 gpm, which translates into a full-time Saugus source capacity of 24,000 AFY. Saugus pumping capacity from all the active municipal supply wells is summarized in Table 2.6-6. These capacities do not include the four Saugus wells contaminated by perchlorate, although they indirectly reflect the capacity of one of the contaminated wells, VWC's Well 157, which has been sealed and abandoned, and replaced by VWC's Well 206 in a non-impacted part of the Subbasin. The three remaining contaminated wells, one owned by NCWD and two owned by SCWD, in addition to the VWC well, represent a total of 6,400 gpm of pumping capacity inactivated due to perchlorate contamination.

**TABLE 2.6-6**
**ACTIVE MUNICIPAL GROUNDWATER SOURCE CAPACITY —**
**SAUGUS FORMATION WELLS**

| Wells | Pump Capacity (gpm) | Max Annual Capacity (AF) | Normal Year Production[(a)] (AF) | Dry-Year Production (AF) |
|---|---|---|---|---|
| *NCWD* | | | | |
| 12 | 2,300 | 3,700 | 1,315 | 2,044 |
| 13 | 2,500 | 4,030 | 1,315 | 2,044 |
| **NCWD Subtotal** | **4,800** | **7,730** | **2,630** | **4,088** |
| *VWC* | | | | |
| 159 | 500 | 800 | 50 | 50 |
| 160 | 2,000 | 3,220 | 1,000 | 1,330 |
| 201 | 2,400 | 3,870 | 100 | 3,577 |
| 205 | 2,700 | 4,350 | 1,000 | 3,827 |
| 206 | 2,500 | 4,030 | 1,175 | 3,500 |
| **VWC Subtotal** | **10,100** | **16,270** | **3,325** | **12,284** |
| **Total Purveyors** | **14,900** | **24,000[(b)]** | **5,955[(b)]** | **16,372[(b)]** |

Source: CLWA 2005. UWMP Table 3-10.

Notes:

(a) Based on recent annual pumping.

(b) Currently active wells only; additional capacity to meet dry-year operating plan would be met by restoration of contaminated wells and new well construction.

In terms of adequacy and availability, the combined active Saugus groundwater source capacity of municipal wells of 24,000 AFY, is more than sufficient to meet the planned use of Saugus groundwater in normal years of 7,500 to 15,000 AFY. During the currently scheduled two-year time frame for restoration of impacted Saugus capacity, this currently active capacity is more than sufficient to meet water demands, in combination with other sources, if both of the next two years are dry. At that time, the combination of currently active capacity and restored impacted capacity, through a combination of treatment at two of the impacted wells and replacement well construction, will provide sufficient total Saugus capacity to meet the planned use of Saugus groundwater during multiple dry-years of 35,000 AF, if that third year is also a dry year.

#### *2.6.1.6.2.2 Sustainability*

Until recently, the long-term sustainability of Saugus groundwater was empirically determined from limited historical experience. The historical record shows fairly low annual pumping in most years, with one four-year period of increased pumping up to about 15,000 AFY that produced no long-term depletion of the substantial groundwater storage in the Saugus. Those empirical observations have now been complemented by the development and application of the numerical groundwater flow model, which has been used to examine aquifer response to the operating plan for pumping from both the Alluvium and the Saugus and also to examine the effectiveness of pumping for both contaminant extraction and control of contaminant migration within the Saugus Formation.

To examine the yield of the Saugus Formation or its sustainability on a renewable basis, the groundwater flow model was used to examine long-term projected response to pumping from both the Alluvium and the Saugus over the 78-year period of hydrologic conditions using alternating wet and dry periods as have historically occurred. The pumping simulated in the model was in accordance with the operating plan for the Subbasin. For the Saugus, simulated pumpage included the planned restoration of recent historic pumping from the perchlorate-impacted wells. In addition to assessing the overall recharge of the Saugus, that pumping was analyzed to assess the effectiveness of controlling the migration of perchlorate by extracting and treating contaminated water close to the source of contamination.

Simulated Saugus Formation response to the ranges of pumping under assumed recurrent historical hydrologic conditions is consistent with actual experience under smaller pumping rates. The response consists of: (1) short-term declines in groundwater levels and storage near pumped wells during dry-period pumping; (2) rapid recovery of groundwater levels and storage after cessation of dry-period pumping; and (3) no long-term decreases or depletion of groundwater levels or storage. Given the combination of actual experience with Saugus pumping and recharge up to about 15,000 AFY, now complemented by modeled projections of aquifer response that show long-term utility of the Saugus at 7,500 to 15,000 AFY in normal years and rapid recovery from higher pumping rates during intermittent dry periods, the Saugus Formation can be considered a sustainable water supply source to meet the Saugus portion of the operating plan for the groundwater subbasin.

### ***2.6.1.6.3 Acton Groundwater Basin***

There is limited data available for the Acton Groundwater Basin; however, as previously mentioned the total storage capacity of the Basin is estimated at approximately 40,000 to 45,000 AF with approximately 14,883 AF available in dry periods and 34,395 AF available in wet years. There are several water-supply wells that extract groundwater from the alluvium at rates

greater than 100 gpm, and numerous small-volume domestic water supply wells scattered throughout the basin region. The major water pumpers are the LACWWD No. 37, Acton Camp, a trailer park, and a few large private wells installed in the southern part of the basin (UWCD and CLWA 1996). Since 2000, LACWWD No. 37 pumping has ranged between 977 AFY and 2,118 AFY. Additional pumping occurring within the Agua Dulce portion of the groundwater basin includes pumping for the Agua Dulce Winery and Vineyards, the Sierra Pelona Mutual Water Company (which serves the Sierra Colony Ranch Estates Tract 34038) and six other small water systems (Slade 2004). These wells are regulated by the Los Angeles County Environmental Health Department.

#### 2.6.1.7 Potential Supply Inconsistency

A small group of wells that have been impacted by perchlorate represent a temporary loss of well capacity within CLWA's service area. However, CLWA and the purveyors have developed an implementation plan that would restore this well capacity. The implementation plan includes a combination of treatment facilities and replacement wells. Treatment facilities for one of the impacted wells became operational in 2006; additional treatment for the other wells is anticipated by December 2008. Additional information on the treatment technology and schedule for restoration of the impacted wells is provided in Section 2.8.7. Additional information concerning water quality issues and replacement capacity is also provided in Section 2.8.7.

### 2.6.2 Imported Water Supplies

Imported water supplies in the Region consist primarily of SWP supplies, which were first delivered to CLWA in 1980. More detail on the SWP is provided in Section 2.11.1. In addition to their SWP Table A Amount, CLWA has developed other imported water supplies. CLWA has purchased an imported surface supply from the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District in Kern County. CLWA wholesales these imported supplies to each of the local retail water purveyors. Additionally, a small amount of SWP water is available to a portion of the eastern part of the Region through deliveries from the Antelope Valley-East Kern Water Agency (AVEK).

*Castaic Lake*

In the early 1960s, DWR began entering into individual SWP Water Supply Contracts with urban and agricultural public water supply agencies located throughout northern, central, and southern California for SWP water supplies. CLWA and AVEK are two (2) of 29 water agencies (commonly referred to as "contractors") that have an SWP Water Supply Contract with DWR. Each SWP contractor's SWP Water Supply Contract contains a "Table A," which lists the maximum amount of water an agency may request each year throughout the life of the contract. Table A is used in determining each contractor's proportionate share, or "allocation," of the total SWP water supply DWR determines to be available each year. The total planned annual delivery capability of the SWP and the sum of all contractors' maximum Table A amounts was originally 4.23 million AF. The initial SWP storage facilities were designed to meet contractors' water demands in the early years of the SWP, with the construction of additional storage

facilities planned as demands increased. However, essentially no additional SWP storage facilities have been constructed since the early 1970s. SWP conveyance facilities were generally designed and have been constructed to deliver maximum Table A amounts to all contractors. After the permanent retirement of some Table A amount by two (2) agricultural contractors in 1996, the maximum Table A amounts of all SWP contractors now totals about 4.17 million AF. Currently, CLWA's annual Table A Amount is 95,200 AF.[7,8] AVEK's annual Table A Amount is 141,400 AF but only approximately 3 percent (or 4,242 AF) is available to the eastern parts of the Region.

While Table A identifies the maximum annual amount of water a SWP contractor may request, the amount of SWP water actually available and allocated to SWP contractors each year is dependent on a number of factors and can vary significantly from year to year. The primary factors affecting SWP supply availability include hydrology, the amount of water in SWP storage at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by SWP contractors. Urban SWP contractors' requests for SWP water, which were low in the early years of the SWP, have been steadily increasing over time, which increases the competition for limited SWP dry-year supplies.

Consistent with other urban SWP contractors, SWP deliveries to CLWA and AVEK have increased as its requests for SWP water have increased. Tables 2.6-7 and 2.6-8 present historical total SWP deliveries to CLWA and AVEK municipal purveyors and AVEK and CLWA SWP demand projections provided to DWR, respectively.

The "*State Water Project Delivery Reliability Report,"* prepared by DWR assists SWP contractors in assessing the reliability of the SWP component of their overall supplies. DWR prepared an updated version of this report in 2005 and is in the process of completing another update. In the 2005 update, DWR provided a recommended set of analyses for SWP contractors to use in preparing their 2005 Urban Water Management Plans. These analyses indicate that the SWP, using existing facilities operated under then current regulatory and operational constraints, and with all contractors requesting delivery of their full Table A Amounts in most years, could deliver 77 percent of total Table A Amounts on a long-term average basis. These analyses also project that SWP deliveries during multiple-year dry periods could average

[7] CLWA's original SWP Water Supply Contract with DWR was amended in 1966 for a maximum annual Table A Amount of 41,500 AF. In 1991, CLWA purchased 12,700 AF of annual Table A Amount from a Kern County water district, and in 1999 purchased an additional 41,000 AF of annual Table A Amount from another Kern County water district, for a current total annual Table A Amount of 95,200 AF.

[8] Of CLWA's 95,200 AF annual Table A Amount, 41,000 AFY was permanently transferred to CLWA in 1999 by Wheeler Ridge-Maricopa Water Storage District, a member unit of the Kern County Water Agency. CLWA's Environmental Impact Report ("EIR") prepared in connection with the 41,000 afy water transfer was challenged in Friends of the Santa Clara River v. Castaic Lake Water Agency (Los Angeles County Superior Court) ("Friends"). On appeal, the Court of Appeal held that since the 41,000 AFY EIR tiered off the Monterey Agreement EIR that was later decertified, CLWA would also have to decertify its EIR as well and prepare a revised EIR. CLWA was not prevented from using any water that is part of the 41,000 AFY transfer. Under the jurisdiction of the Los Angeles County Superior Court, CLWA prepared and circulated a revised Draft EIR for the transfer. CLWA approved the revised EIR in late 2004 ("2004 EIR") and lodged the EIR with the Los Angeles Superior Court. Thereafter, the case was dismissed with prejudice (permanently).
In January 2005, two new challenges to CLWA's 2004 EIR were filed in the Ventura County Superior Court by the Planning and Conservation League ("PCL") and by the California Water Impact Network ("CWIN"); these cases were consolidated and transferred to Los Angeles County Superior Court, Planning and Conservation League v. Castaic Lake Water Agency (Los Angeles County Superior Court,) ("PCL Action"). In May 2007, a final Statement of Decision was filed by the trial court in the PCL Action. It included a determination that the transfer is valid and cannot be terminated or unwound. The trial court did find one defect in the 2004 EIR, requiring Judgment to be entered against CLWA. The defect, however, did not relate to the environmental conclusions reached in the 2004 EIR. CLWA has been ordered to set aside its certification of the 2004 EIR, correct the defect and report back to the Court. The Writ issued by the Court as part of the Judgment specifically states that the Judgment does not call for CLWA to set aside the transfer. In July 2007, Petitioners filed a Partial Notice of Appeal.

about 25 to 40 percent of total Table A Amounts and could possibly be as low as 5 percent during an unusually dry single year. During wetter years, or more than 25 percent of the time, 100 percent of full Table A Amounts is projected to be available. A draft update of the *State Water Project Delivery Reliability Report* was released for public review in late January 2008. A final report is anticipated after April 2008.

**TABLE 2.6-7**
**HISTORICAL TOTAL SWP DELIVERIES TO PURVEYORS**

| Year | Deliveries (AF) | Year | Deliveries (AF) |
|---|---|---|---|
| 1980 | 1,125 | 1993 | 15,287 |
| 1981 | 5,816 | 1994 | 14,611 |
| 1982 | 9,659 | 1995 | 16,996 |
| 1983 | 9,185 | 1996 | 18,093 |
| 1984 | 10,996 | 1997 | 22,148 |
| 1985 | 11,823 | 1998 | 20,254 |
| 1986 | 13,759 | 1999 | 27,320 |
| 1987 | 16,285 | 2000 | 32,731 |
| 1988 | 19,033 | 2001 | 35,875 |
| 1989 | 21,618 | 2002 | 44,954 |
| 1990 | 21,647 | 2003 | 46,997 |
| 1991 | 8,368 | 2004 | 50,327 |
| 1992 | 15,175 | 2005 | 39,964 |

**TABLE 2.6-8**
**DEMAND PROJECTIONS PROVIDED TO WHOLESALE SUPPLIER (DWR) (AF)**

| Wholesaler (Supply Source) | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|
| DWR (SWP)-CLWA | 95,200 | 95,200 | 95,200 | 95,200 | 95,200 |
| DWR (SWP)- AVEK | 4,200 | 4,200 | 4,200 | 4,200 | 4,200 |
| **Region Total** | **99,400** | **99,400** | **99,400** | **99,400** | **99,400** |

The SWP supplies projected to be available for delivery to the Region were determined based on the total SWP delivery percentages identified by DWR in its 2005 analyses. Table 2.6-9 shows SWP supplies projected to be available to the Region in average/normal years (based on the average delivery over the study's historic hydrologic period from 1922 through 1994) (i.e., long-term average basis). Table 2.6-9 also summarizes estimated SWP supply availability in a single dry year (based on a repeat of the worst-case historic hydrologic conditions of 1977) and over a multiple dry year period (based on a repeat of the worst-case historic four-year drought of 1931 through 1934). Table 2.6-9 does not include the 11,000 AFY available from the Buena Vista-Rosedale transfer in an average, single-dry, or multiple-dry year (see Section 2.6.2.1 below).

As part of its water supply contract with DWR, CLWA has access to a portion of the storage capacity of Castaic Lake. This Flexible Storage Account allows CLWA to utilize up to 4,684 AF of the storage in Castaic Lake. Any of this amount that CLWA borrows must be replaced by CLWA within five (5) years of its withdrawal. CLWA manages this storage by keeping the account full in normal and wet years and then delivering that stored amount (or a portion of it)

during dry periods. The account is refilled during the next year that adequate SWP supplies are available to CLWA to do so. CLWA has recently negotiated with Ventura County water agencies to obtain the use of their Flexible Storage Account. This allows CLWA access to another 1,376 AF of storage in Castaic Lake. CLWA access to this additional storage is available on a year-to-year basis for 10 years, as of 2006. AVEK does not have access to SWP flexible storage.

**TABLE 2.6-9**
**WHOLESALER SUPPLY RELIABILITY (AF)**

| Wholesaler (Supply Source) | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|
| *Average Water Year* | | | | | |
| DWR (SWP) | | | | | |
| Table A Supply | 68,600 | 70,600 | 72,600 | 74,600 | 76,600 |
| % of Table A Amount[(a)] | 71% | 73% | 75% | 77% | 77% |
| *Single Dry Year* | | | | | |
| DWR (SWP) | | | | | |
| Table A Supply | 4,000 | 4,000 | 4,000 | 5,000 | 5,000 |
| % of Table A Amount[(a)] | 4% | 4% | 4% | 5% | 5% |
| *Multi-Dry Year* | | | | | |
| DWR (SWP) | | | | | |
| Table A Supply | 31,800 | 31,800 | 31,800 | 32,800 | 32,800 |
| % of Table A Amount[(a)] | 32% | 32% | 32% | 33% | 33% |

Note:
(a) Percentages of Table A Amount from DWR's "2005 *SWP Delivery Reliability Report*."

While the primary supply of water available from the SWP is allocated Table A supply, SWP supplies in addition to Table A water may periodically be available, including "Article 21" water, Turnback Pool water, and DWR dry-year purchases. Article 21 water (which refers to the SWP contract provision defining this supply) is water that may be made available by DWR when excess flows are available in the Delta (i.e., when Delta outflow requirements have been met, SWP storage south of the Delta is full, and conveyance capacity is available beyond that being used for SWP operations and delivery of allocated and scheduled Table A supplies). Article 21 water is made available on an unscheduled and interruptible basis and is typically available only in average to wet years, generally only for a limited time in the late winter. The Turnback Pool is a program where contractors with allocated Table A supplies in excess of their needs in a given year may turn back that excess supply for purchase by other contractors who need additional supplies that year. The Turnback Pool can make water available in all types of hydrologic years, although generally less excess water is turned back in dry years. As urban contractor demands increase in the future, the amount of water turned back and available for purchase will likely diminish. In critical dry years, DWR has formed Dry Year Water Purchase Programs for contractors needing additional supplies. Through these programs, water is purchased by DWR from willing sellers in areas that have available supplies and is then sold by DWR to contractors

*The Sacramento-San Joaquin Delta*

willing to purchase those supplies. Because the availability of these supplies is somewhat uncertain, they are not included as supplies in this IRWMP. However, CLWA's and AVEK's access to these supplies when they are available may enable them to improve the reliability of their SWP supplies beyond the values used throughout this report.

In addition to climate change and variability, imported water is also subject to regulatory and legal challenges. The Delta is the focal point for water management, ecosystem restoration, land use planning, and other major initiatives in California and is the "hub" for SWP water (SWP water is the primary source of imported water in the Region). Because this IRWMP region is dependent upon imported water coming from the Delta, it is very important to the IRWMP process that stakeholders and the general public have an understanding of the key issues affecting the Delta. These issues include: water supply reliability, water quality, ecosystem restoration, levee system integrity, and recreation.

Water quality in the Delta is negatively affected by multiple constituents such as salinity, mercury, dissolved oxygen, organic carbon, selenium, pesticides, and toxicity of unknown origin. Further complications are apparent when considering the declining health of the Delta ecosystem and the reduction of aquatic and terrestrial habitat. Water diversions, toxic pollutants, and the introduction of exotic species continue to degrade the quality of the habitat that remains. Some solutions, such as conversion of agricultural land to accommodate ecosystem improvements and programs that provide water flow and timing requirements, place constraints upon farmers who rely upon the land for economic survival, as well as on the contractors who must meet the water demand of the southern part of the state. The need to balance multiple competing uses is apparent when evaluating this issue. The integrity and maintenance of the complex levee system in the Delta is another major concern. Levee failures lead to inundation and destruction of agricultural lands and result in increased salinity necessitating the shut down of export pumps. Finally, the use of the Delta for recreational purposes has increased in popularity coincident with the growing state population. The estimates of recreation use (over 12 million recreational user days per year) indicate that this factor is a key component in the management of Delta resources.

A December 2007 federal court decision requires that DWR curtail pumping from the Delta to protect the endangered Delta Smelt. DWR estimates that, depending on Delta smelt migration patterns and precipitation, pumping could be reduced by 25 to 30 percent until new federal biological permits are obtained. Future water deliveries out of the Delta will depend on conditions in those new federal permits.

#### 2.6.2.1 Transfers and Exchanges

CLWA has executed a long-term transfer agreement for 11,000 AFY with the Buena Vista Water Storage District and Rosedale-Rio Bravo Water Storage District. These two districts, both located in Kern County, joined together to develop a program that provides both a firm water supply and a water banking component. Both districts are member agencies of the Kern County Water Agency (KCWA), a SWP contractor, and both districts have contracts with KCWA for SWP Table A Amounts. The supply is based on existing long-standing Kern River water rights, which would be delivered by exchange of SWP Table A Amount.

This acquisition is consistent with CLWA's annexation policy under which it will not approve potential annexations unless additional water suppliers are acquired. Currently proposed annexations have a demand for about 4,000 AFY of this supply, which, if approved, would leave

the remaining 7,000 AFY available for potential future annexations. Unless and until any such annexations are actually approved, this supply will be available to meet demands within the existing CLWA service area.

### 2.6.3 Recycled Water

At the current time the necessary infrastructure to produce and utilize recycled water exists within the CLWA service area only. Hence the following section on recycled water focuses on the CLWA service area. The Santa Clarita Valley Sanitation District (SCVSD) of Los Angeles County owns and operates two water reclamation plants, Saugus Water Reclamation Plant (WRP) and Valencia WRP, within the CLWA service area. The water is treated to tertiary standards and discharged to the Santa Clara River. The Newhall Ranch development is also planning to construct a water reclamation facility, and non-potable water from this source may be incorporated into the CLWA recycled water system.

By utilizing the reclaimed water from the WRPs for irrigation and other non-potable purposes, CLWA can more efficiently allocate its potable water and increase the reliability of water supplies in the Valley. Accordingly, CLWA has constructed an initial phase (Phase 1A) of the recycled water system, and proposes to construct an additional phase, according to its 2002 *Draft Recycled Water Master Plan* and 2006 *Recycled Water Master Plan Program Environmental Impact Report (EIR)*.

#### 2.6.3.1 Existing Facilities

SCVSD's Saugus and Valencia WRPs operated independently until 1980, at which time the two plants were linked by a bypass interceptor. The interceptor was installed to transfer a portion of flows received at the Saugus WRP to the Valencia WRP. In order to improve operating efficiencies and because a shortage of space at the Saugus WRP limits future expansion of wastewater facilities in what was then LACWWD No. 26, a joint powers agreement was enacted in 1984, creating the Santa Clarita Valley Joint Sewerage System. Through use of wastewater and sludge connecting lines, future expansions of treatment works, including sludge handling and disposal operations, will be provided at the larger Valencia WRP. Together, the Valencia and Saugus WRPs have a design capacity of 28.1 million gallons per day (mgd). In fiscal year 2002-2003 (FY 02/03), they produced an average of 18.33 mgd, none of which was used for recycled water purposes.

The primary sources of wastewater to the Saugus and Valencia WRPs are domestic. Both plants are tertiary treatment facilities and produce high quality reclaimed water. Historically, the reclaimed water from the two WRPs has been discharged to the Santa Clara River. The Saugus WRP reclaimed water outfall is located approximately 400 feet downstream (west) of Bouquet Canyon Road. Reclaimed water from the Valencia WRP is discharged to the Santa Clara River at a point approximately 2,000 feet downstream (west) of The Old Road Bridge.

The Saugus WRP, completed in 1962, is southeast of the intersection of Bouquet Canyon Road and Soledad Canyon Road. Two subsequent expansions and flow equalization facilities brought its current design capacity to 6.5 mgd. The treatment process was brought up to a tertiary level with the addition of dual-media pressure filters in 1987. However, no future expansions are possible due to space limitations at the site. In FY 02/03, the Saugus WRP produced an average reclaimed water flow of 5.28 mgd (5,914 AFY). Use of recycled water

from this facility is permitted under Regional Water Quality Control Board (RWQCB) Order No. 87-49; however, diverting these discharges for recycled water uses may potentially impact downstream habitat within the reach between the Saugus WRP and Valencia WRP. Until more detailed habitat investigations and minimum flow studies are conducted, it is assumed that only recycled water from the Valencia WRP will be utilized in the future to meet the Region's recycled water demand.

The Valencia WRP is located on The Old Road near Magic Mountain Amusement Park. The Valencia WRP was completed in 1967. The existing capacity is 21.6 mgd following three subsequent expansions: construction of a 4.4 MG flow equalization tank in February 1995, the Stage 4 expansion completed in June 1996, and the most recent Stage 5 expansion of 9 mgd. In FY 02/03, the Valencia WRP produced an average reclaimed water flow of 13.05 mgd (14,628 AFY). Use of recycled water from the Valencia WRP is permitted under RWQCB Order No. 87-48. On July 24, 1996, CLWA executed an agreement with SCVSD to purchase up to 1,700 AFY of recycled water from the Valencia WRP. In 2002, CLWA constructed the facilities to utilize this supply and initiated deliveries in 2003 to the Westridge Golf Course. Since 2003, approximately 1,300 AF of recycled water has been used (personal communication, M. Zauner, SCVSD 2007).

*Valencia Water Reclamation Plant*

Recycled water from Valencia WRP has been used in the past by the City of Santa Clarita for landscape irrigation and by Pacific Pipeline and Oberg Construction for construction applications, delivered via tanker truck. In April 2000, a contract was signed with TransCoast Financial for use of up to 20,000 gpd for dust control at a nearby composting facility. When recycled water is requested, it is transported via tanker truck.

### 2.6.3.2 Planned Recycled Water Improvements and Expansions

To accommodate anticipated growth in the Valley and to ensure compliance with discharge requirements from the RWQCB, the Valencia WRP will expand as indicated in the *2015 Santa Clarita Valley Joint Sewerage System Facilities Plan and EIR*. The ultimate capacity of the Valencia WRP is planned to be 27.6 mgd. The Stage 5 expansion (9 mgd increase) was completed in 2002. Stage 6 involves an additional 6 mgd increase in design capacity. No expansion is planned at the Saugus WRP. Thus, the ultimate total capacity for both WRPs is 34.1 mgd (38,200 AFY). Table 2.6-10 provides the projected reclaimed water flow for the combined Valencia and Saugus WRP planning area.

**TABLE 2.6-10**
**RECLAIMED WATER CAPACITY (AF)**

| Description | 2002 | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|---|
| Reclaimed Water Produced at Saugus and Valencia WRPs | 20,542 | 23,700 | 28,700 | 31,700 | 34,600 | 27,400 | 38,200 |
| Recycled Water (Meeting Title 22 Requirements) | 20,542 | 23,700 | 28,700 | 31,700 | 34,600 | 27,400 | 38,200 |

Note: (a) Information collected from SCVSD and Draft 2002 *Recycled Water Master Plan*.

### 2.6.3.3 Recycled Water Uses

CLWA wishes to enhance its water supply through the use of recycled water. The use of recycled water is constrained by availability of recycled water and various laws, some of which are described in greater detail in CLWA's 2002 *Draft Recycled Water Master Plan (Master Plan)*. CLWA's existing recycled water system permits the use of up to 1,700 AFY and CLWA has entered into an existing agreement with SCVSD for use of its reclaimed water. However, the ultimate recycled water use will be governed by availability of recycled water from the SCVSD WRPs and consideration of other requirements including Water Code Section 1210 (giving SCVSD, as owner of the Valencia and Saugus WRPs exclusive rights to the treated water from the reclamation plants against anyone who has supplied the water); Water Code Section 1211 (requiring approval from the SWRCB prior to making any change in the point of discharge, place of use, or purpose of use); and any other regulatory requirements that may require continued discharges to the Santa Clara River to maintain fishery, wildlife, recreational or other beneficial uses, among others.

The Master Plan identified recycled water users that would account for a total of 17,400 AFY of recycled water use in the year 2030 (see Section 2.6.3.7 below). The Draft Program Environmental Impact Report (EIR) for the Master Plan (2006) concluded that all of the reclaimed water required for the full development of the Master Plan could be supplied by just the anticipated growth in reclamation plant effluent through the year 2030.

The ability of CLWA to use recycled water is constrained by its rights to use the water available. While there are few regulatory limitations on the use of oilfield produced water, the use of reclaimed water is limited by various state water laws, codes, and court decisions. These regulatory limitations are described in greater detail in the 2002 Master Plan.

CLWA has been approved to use 1,700 AFY, but the ultimate recycled water use is governed by the availability of native versus foreign water as shown in Table 2.6-11. According to the Water Code Section 1211, downstream water rights holders are protected if the source of return flow is "native water." Native water is water that under natural conditions would contribute to a given stream or other body of water (i.e., surface water or percolating groundwater). Thus, if the source of water is "foreign" (e.g., imported or SWP water), downstream water rights holders are not protected under the code. Groundwater extracted from and used in the Valley and then discharged to the Santa Clara River as wastewater effluent may be considered "native water" to the river; whereas, SWP water imported into and used in the Valley and then discharged to the Santa Clara River as wastewater effluent may be considered "foreign water." Furthermore, while existing discharges may have a permanent public use (i.e., habitat), only the "foreign water" percentage within the effluent flows can be diverted for recycling purposes.

In 2005, the Valley's potable water supply consisted of approximately 36 percent groundwater (native water) and 64 percent imported water (foreign water). Projected potable water demand for the year 2030 is approximately 133,700 AF, 57 percent derived from foreign water and 43 percent derived from native sources. The projected recycled water component would consist of approximately 57 percent (76,600 AF foreign/133,700 total) of projected wastewater generation. Therefore, CLWA's future recycled water system is limited to the foreign water portion of wastewater. This volume is determined by multiplying the percentage of foreign water by the wastewater flow. As shown in Table 2.6-11, the future foreign water portion of wastewater is 21,890 AFY (57 percent times 38,200 AFY). It is important to note that these percentages are of potable water demand (i.e., they do not include the use of recycled water in

the calculation) and as such are not percentages of total water demand. Although the foreign water percentage of potable water demand decreases by seven percent from 2005 to 2030, actual use of foreign water increases.

**TABLE 2.6-11**
**USE OF NATIVE WATER VS. FOREIGN WATER**

| | Native Water Demand (AFY) | Foreign Water Demand (AFY)[(a)] | Recycled Water Demand (AFY) | Potable Water Demand Total (AFY) | Wastewater Flow[(b)] (AFY) | Foreign Water Percentage of Potable Water Demand | Foreign Water Portion of Wastewater (AFY) |
|---|---|---|---|---|---|---|---|
| Projected (2005) | 25,500 | 46,100 | 800 | 71,600 | 31,500 | 64% | 20,100 |
| Future (2030) | 57,100 | 76,600 | 17,391 | 133,700 | 38,200 | 57% | 21,890 |

Note:
(a) Foreign water includes SWP water, water transfers, and desalination.
(b) From Table 2.6-10.

In order to maintain native water rights, and assuming the ultimate capacities and recycled water demand, the existing and planned methods of reclaimed water discharge and use are as summarized in Table 2.6-12.

**TABLE 2.6-12**
**DISCHARGE OF RECLAIMED WATER (NON-RECYCLED)**

| Method of Discharge | Treatment Level | Wastewater Discharge and Use (AF) | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
| Discharge to Santa Clara River | Disinfected, tertiary | 30,700 | 36,600 | 34,900 | 30,200 | 25,500 | 20,800 |
| Recycled Water Users | Disinfected, Tertiary | 800 | 1,600 | 3,300 | 8,000 | 12,700 | 17,400 |
| | **Total** | **31,500** | **38,200** | **38,200** | **38,200** | **38,200** | **38,200** |

Source: CLWA 2005.

### 2.6.3.4 Other Potential Sources of Recycled Water

#### *2.6.3.4.1 Newhall Ranch Water Reclamation Plant*

A third Valley reclamation plant is proposed as part of the Newhall Ranch project. This proposed facility would be located near the western edge of the development project along the south side of State Route 126. The plant will be constructed in stages, with an ultimate capacity of 6.8 mgd. Effluent from the proposed water reclamation plant would be used to meet non-potable water demand within the development area. According to the *Newhall Ranch Draft Additional Analyses*, this plant is projected to produce 5,344 AFY of recycled water on average (CLWA 2005). During the dry months, all of the recycled water would be used for non-potable uses within Newhall Ranch, supplemented by additional recycled water from CLWA. During the wet winter months when demands are low, the Newhall Ranch WRP would, on average, have approximately 286 AFY of excess recycled water. In order for the WRP to be non-discharging (i.e., have production equal to demand), this recycled water would be transferred into CLWA's recycled water system for use and/or storage. Any excess demand would need a National Pollutant Discharge Elimination System (NPDES) permit from the Los Angeles RWQCB prior to

discharge. NPDES permits could place stricter regulatory limitation on the reclaimed water, which may increase treatment costs. Furthermore, the discharge could be subject to additional environmental review prior to approval.

#### *2.6.3.4.2 Oilfield Produced Water*

Oilfield produced water is a by-product of oil production generated when oil is extracted from the oil reservoir. It is generally of poor quality and unsuitable for potable, industrial, or irrigation use without treatment. Because of the poor water quality, re-injection has often been the most cost-effective disposal option.

Treatment processes can produce potable quality water; yet, because of the poor initial water quality and the organic constituents, it is often more appropriate for treated oilfield produced water to be used for irrigation or industrial purposes to offset potable water demand. Pilot studies performed at the Placerita Oilfield have indicated that, even with reverse osmosis (RO) treatment, some organic compounds such as naphthalene, 2-butanone, and ethylbenzene, can be detected in the RO effluent.

The economics of oil production are market-driven and are different from those of drinking water supplies. As oil prices rise or drop, oilfields go into and out of production depending on the costs of production. Also, oilfields are eventually depleted of supply and abandoned. Therefore, while oilfield produced water should be considered long-term, it is not a completely firm supply and is not permanent.

Studies of the potential reuse of treated oilfield produced water from the Placerita Oilfield have indicated that approximately 44,000 barrels per day (1.8 mgd) of treated oilfield produced water may be available. For irrigation reuse, the produced water would need to be cooled and treated to remove hardness, silica, total dissolved solids (TDS), boron, ammonia, and total organic carbon (TOC).

### 2.6.3.5 Summary of Available Source Water Flows

As discussed previously, the non-potable water system has four potential sources of water. The flows projected to be available are shown in Table 2.6-13. These are not estimates of projected recycled water use but of potential recycled water supply available. For planning purposes, only recycled water from SCVSD is considered available to meet the projected recycled water demands due to the level of evaluation still needed on the alternative sources.

### 2.6.3.6 Recycled Water Demand

In this section, current recycled water use is discussed, and potential recycled water users within CLWA's service area are identified as determined from the 2002 Master Plan. For each potential user, estimates are provided for annual demand, peak monthly demand, peak daily demand, and the hourly distribution of water demand during peak months. The requirements for potential users to convert their existing water potable systems to recycled water are also discussed.

**TABLE 2.6-13**
**SUMMARY OF AVAILABLE RECYCLED WATER SOURCE FLOWS**

| Source | Current Capacity (mgd) | Projected Capacity (mgd) | Projected to be Available for Non-Potable Use (AFY) |
|---|---|---|---|
| SCVSD Total | 28.1 | 34.1 | 19,995 |
| *Valencia WRP* | *21.6* | *27.6* | *19,995* |
| *Saugus WRP* | *6.5* | *6.5* | *0* |
| Oilfield Produced Water | 0 | 1.8 | 1,980 |
| Newhall Ranch WRP | 0 | 6.8 | 5,344 |
| **Total** | | | **27,319** |

Source: CLWA 2005.

#### *2.6.3.6.1 Current Use*

Currently, recycled water is served to landscape irrigation customers, including the Westridge Golf Course. Table 2.6-14 provides a summary of existing recycled water use.

**TABLE 2.6-14**
**ACTUAL RECYCLED WATER USES**

| Type of Use | Treatment Level | Actual 2004 Use (AF) |
|---|---|---|
| Landscape | Disinfected tertiary | 419 |
| **Total** | | **419** |

Source: 2006 *Santa Clarita Valley Water Report*.

#### *2.6.3.6.2 Potential Users*

Potential recycled water users were identified through a number of sources including:

- 1993 *Recycled Water Master Plan*
- Water consumption records for LACWWD No. 36, NCWD, SCWD, and VWC
- Land use maps
- General Plans and Specific Plans for the City of Santa Clarita and County
- Discussions with City of Santa Clarita, County, water purveyor, and land developer staff
- "Windshield" survey of CLWA service area
- Draft 2002 *Recycled Water Master Plan*

In order to be considered as a potential recycled water user, the user had to be located within CLWA's service area and have a potential non-potable water demand of at least 4 AFY. A total potential demand for existing and future recycled water users is 34,500 AFY as identified in the 2002 Master Plan for 2015. As this volume is already greater than the anticipated source of recycled water supply, additional future recycled users were not identified at this time. However, CLWA may reevaluate the list of recycled users after 2015 to consider future users not included in the 2002 Master Plan. Table 2.6-15 provides a summary of the demands by user type.

**TABLE 2.6-15**
**POTENTIAL RECYCLED WATER USES IN REGION**

| Type of Use | Treatment Level | Potential Use (AF) 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| Landscape | Disinfected tertiary | 34,500 | 34,500 | 34,500 | 34,500 | 34,500 |
| **Total** | | **34,500** | **34,500** | **34,500** | **34,500** | **34,500** |

Source: CLWA 2002

The initial list of potential recycled water users was reduced by evaluating the potential users that would be most expensive to serve until potential uses were approximately 17,000 AFY. The unit cost to serve each user was calculated using the capital costs for pipelines, reservoirs, and pump stations as well as operational costs for pumping. The areas retained for recycled water service have costs per AF ranging from $120 to $5,000. Areas eliminated from service had costs as high as $13,000 per AF. However, only two of the proposed phases in the 2002 Master Plan had costs above $1,000 per AF. The resulting proposed recycled water service area encompasses a large portion of CLWA's western service area.

### 2.6.3.7 Potential Recycled Water Demand

Potential annual recycled water demands were estimated from historical water use records for existing users (and the proposed irrigated area), and expected water use per acre for future users. Demands for recycled water are seasonal, with the highest demands occurring during the hot, dry summer months when irrigation requirements are greatest.

The total potential annual recycled water demand that is cost effective to serve is approximately 17,400 AFY. Implementation of the recycled water system is expected to occur over the next 25 years. Table 2.6-16 summarizes the projected future use by user type.

**TABLE 2.6-16**
**PROJECTED POTENTIAL FUTURE USE OF RECYCLED WATER IN SERVICE AREA**

| Type of Use | Projected Use (AF) 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|
| Landscape | 1,600 | 3,300 | 8,000 | 12,700 | 17,400 |
| **Total** | **1,600** | **3,300** | **8,000** | **12,700** | **17,400** |

Source: CLWA 2002

## 2.6.4 Groundwater Banking

With recent developments in conjunctive use and groundwater banking, significant opportunities exist to improve water supply reliability for the Region. Conjunctive use is the coordinated operation of multiple water supplies to achieve improved supply reliability. Most conjunctive use concepts are based on storing groundwater supplies in times of surplus for use during dry periods and drought when surface water supplies would likely be reduced.

Groundwater banking programs involve storing available surface water supplies during wet years in groundwater basins in, for example, the San Joaquin Valley. Water would be stored either directly by surface spreading or injection, or indirectly by supplying surface water to farmers for their use in-lieu of their intended groundwater pumping. During water shortages, the

stored water could be pumped out and conveyed to the banking partner, or used by the farmers in exchange for their surface water allocations, which would be delivered to the banking partner. At the current time CLWA, the Region's wholesaler, has evaluated groundwater banking as part of its overall water supply reliability.

In 2003, CLWA produced a *Draft Water Supply Reliability Plan*. The plan outlines primary elements that CLWA should include in its water supply mix to obtain maximum overall supply reliability enhancement. These elements include both conjunctive use and groundwater banking programs, as well as water acquisitions. The plan also contains a recommended implementation plan and schedule.

The reliability plan recommended that CLWA obtain total banking storage capacity of 50,000 AF, with pumpback capacity of 20,000 AF per year, by 2005. For the long-term, CLWA should obtain a total of 183,000 AF of storage capacity, with total pumpback capacity of 70,000 AF per year by 2050. Table 2.6-17, taken from the 2003 *Draft Water Supply Reliability Report*, presents an implementation schedule recommended for both storage and pumpback capacity beginning in 2005 and incrementally increasing through 2050.

**TABLE 2.6-17**
**RECOMMENDED SCHEDULE FOR WATER BANKING CAPACITY[(a)]**

| Year | Total Pumpback (AFY) | Total Storage (AFY) |
|---|---|---|
| 2005 | 20,000 | 50,000 |
| 2010 | 20,000 | 50,000 |
| 2020 | 40,000 | 100,000 |
| 2030 | 60,000 | 150,000 |
| 2040 | 70,000 | 183,000 |
| 2050 | 70,000 | 183,000 |

Source: CLWA 2003b.

### 2.6.4.1 Semitropic Water Banking

Semitropic Water Storage District (Semitropic) provides SWP water to farmers for irrigation. Semitropic is located in the San Joaquin Valley in the northern part of Kern County immediately east of the California Aqueduct. Using its available groundwater storage capacity (approximately 1 million AF), Semitropic has developed a groundwater banking program, which it operates by taking available SWP supplies in wet years and returning the water in dry years. As part of this dry-year return, Semitropic can leave its SWP water in the Aqueduct for delivery to a banking partner and increase its groundwater production for its farmers. Semitropic constructed facilities so that groundwater can be pumped into a Semitropic canal and, through reverse pumping plants, be delivered to the California Aqueduct. Semitropic currently has six banking partners: the Metropolitan Water District of Southern California (Metropolitan), Santa Clara Valley Water District, Alameda County Water District, Alameda County Flood Control and Water Conservation District Zone 7, Vidler Water Company, and The Newhall Land and Farming Company. The total amount of storage under contract is approximately 1 million AF.

In 2002, CLWA stored an available portion of its Table A Amount (24,000 AF) in an account in Semitropic's program. In 2004, 32,522 AF of available 2003 Table A Amount water was stored in a second Semitropic account.[9] In accordance with the terms of CLWA's storage agreements

[9] No legal challenge was made to CLWA's approval of this project or to the negative declaration for this project.

with Semitropic, 90 percent of the banked amount, or a total of 50,870 AF, is recoverable through 2013 to meet CLWA water demands when needed. Each account has a term of ten years for the water to be withdrawn and delivered to CLWA.[10] Current operational planning includes use of the water stored in Semitropic for dry-year supply. Accordingly, it is reflected in the available supplies delineated in this section, and it is also reflected in contributing to short-term (prior to 2013) water supply reliability in Table 2.6-1.

#### 2.6.4.2 Rosedale-Rio Bravo Water Storage District Water Banking

Also located in Kern County, immediately adjacent to the Kern Water Bank, Rosedale-Rio Bravo Water Storage District has completed environmental documentation for a Water Banking and Exchange Program. The initial offering from the program is storage and pumpback capacity of 20,000 AFY, with up to 100,000 AF of storage capacity. This banking program would meet the total pumpback and exceed the total storage capacity in 2010 recommended in the implementation schedule provided in CLWA's 2003 *Draft Water Supply Reliability Report*. In 2004, CLWA signed an MOU with Rosedale-Rio Bravo Water Storage District to begin preliminary non-binding negotiations on the possible terms for participation in the program. In April 2005, CLWA and Rosedale-Rio Bravo Water Storage District executed a deposit agreement for the exclusive right to negotiate, and CLWA approved an EIR in October 2005. Upon completion of the California Environmental Quality Act (CEQA) documentation, this program became operational. The banking program allows the storage of up to 20,000 AFY of CLWA's water supplies when they are available, and up to 20,000 AFY of recovered or exchange water delivered to CLWA in years when supplies are limited. This project is a water management program designed to improve the reliability of CLWA's existing dry-year supplies.

### 2.6.5 Other Opportunities

In addition to the programs identified above, the following programs are proposed within the Region to enhance reliability and meet demands.

The *Draft Water Supply Reliability Plan* recommends water banking storage and pumpback capacity both north and south of CLWA's service area, the latter of which would provide an emergency supply in case of catastrophic outage along the California Aqueduct. CLWA is assessing southern water banking opportunities including potential programs with the Chino Basin Watermaster (with whom CLWA signed an MOU in 2003), Calleguas Municipal Water District, and San Gorgonio Pass Water Agency.

Groundwater banking and conjunctive-use programs enhance the reliability of both the existing and future supplies. Table 2.6-18 summarizes CLWA's future reliability enhancement programs.

[10] Thereafter, the remaining amount of project water is forfeited from the account.

**TABLE 2.6-18**
**FUTURE RELIABILITY ENHANCEMENT PROGRAMS**

| Project Name | Year Available | Proposed Quantities (AF) Average/Normal Year | Single Dry Year | Multiple Dry Years |
|---|---|---|---|---|
| Additional Planned Banking Programs | 2014 | 0 | 20,000 | 20,000 |

Source: CLWA 2005. UWMP Table 3-12.
Note:
(a) Supplies shown are maximum withdrawal capacity for each of four consecutive dry years.

## 2.7 Summary of Major Water Issues and Problems

Over the course of the series of Stakeholder meetings, many issues and topics were discussed. However, many of the issues raised can be summarized into five themes:

- Continued growth in water demand while imported water supplies become less reliable. The Stakeholders expressed a need for a comprehensive picture of available water supplies and the desire to find alternative water sources
- Difficulty in maintaining open space and habitat areas given population growth and increased urbanization
- Variety of water quality issues, including perchlorate contamination, and TMDLs for chloride and nitrate compounds
- Runoff and drainage issues in the more rural areas that result in negative effects to the rural areas and areas downstream
- Runoff and drainage issues related to urbanizing areas in the floodplain

## 2.8 Water Quality

### 2.8.1 Impaired Water Bodies

There are many tools, regulatory, voluntary, or incentive based, currently available for preventing pollution. The US EPA, SWRCB, and RWQCBs have permitting, enforcement, remediation, monitoring, and watershed-based programs to prevent pollution. Pollution can enter a water body from point sources like wastewater treatment plants and/or other industries that directly discharge to the river, and from nonpoint sources over a broad area, such as runoff from a city and/or agricultural farmland or grazing areas located adjacent to stretches of the river reach. Preventing pollution from most point sources relies on a combination of source control and treatment, while preventing nonpoint source pollution generally involves the use of best management practices (BMPs), efficient water management practices (EWMPs), and source control. Nonpoint source pollution is not typically associated with discrete conveyances. The SWRCB and RWQCBs are adopting TMDLs to control both point and nonpoint source pollution in those water bodies that are not attaining their water quality standards.

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. SDWA applies to every public water system in the United States. SDWA authorizes the US EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. Originally, SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. Amendments in 1996 greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. Under the SDWA, technical and financial aid is available for certain source water protection activities.

The Federal Clean Water Act (CWA) contains two strategies for managing water quality including, (1) a technology-based approach that envisions requirements to maintain a minimum level of pollutant management using the best available technology; and (2) a water quality-based approach that relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. Section 303(d) of the CWA bridges these two (2) strategies. Section 303(d) requires that the States make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the US EPA administrator deems they are appropriate) the States are required to develop TMDLs. A TMDL must account for all sources of the pollutants that caused the water to be listed. Federal regulations require that the TMDL, at a minimum, account for contributions from point sources (Federally permitted discharges) and contributions from nonpoint sources.

A TMDL is a number that represents the assimilative capacity of receiving water to absorb a pollutant. A TMDL is the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources plus an allotment for natural background loading, and a margin of safety as well as some accounting for seasonal variation. TMDLs can be expressed in terms of mass per time (the traditional approach) or in other ways such as toxicity or a percentage reduction or other appropriate measure relating to a state water quality objective. A TMDL is implemented by reallocating the total allowable pollution among the different pollutant sources (through the permitting process or other regulatory means) to ensure that the water quality objectives are achieved. The Region currently has two adopted TMDLs, one for nitrogen compounds and one for chlorides.

The Nitrogen Compounds TMDL was established due to the listing of various reaches of the Santa Clara River on the 303(d) list of impaired water bodies in 1998. The source analysis for the Nitrogen Compound TMDL found discharge of reclaimed water to be one of the sources of nitrogen compounds in the river, along with aerial deposition, agricultural runoff, stormwater runoff, and groundwater discharge. Given these sources, wasteload allocations for nitrogen compounds were assigned to the various sources. The Nitrogen Compounds TMDL was included as a Los Angeles RWQCB Basin Plan Amendment in August 2003.

The Chloride TMDL was established due to the listing of Reaches 5 and 6 of the Upper Santa Clara River for chloride on the 303(d) list of impaired water bodies in 1998. Sources of chloride include water softeners, SWP water, and wastewater effluent. The Chloride TMDL includes a number of special studies to provide scientific certainty over the appropriate wasteload allocations and objectives for chloride that are necessary to support various beneficial uses, including salt-sensitive agriculture, groundwater and endangered species. Several compliance options for the Chloride TMDL are under consideration. Option 1 would target a 100 mg/L

chloride concentration. Under this option various levels of advance treatment would be implemented at the Saugus and Valencia water reclamation plants, in combination with a 43-mile brine line and/or effluent ocean outfall. Option 2 would target a range of 100 to 150 mg/L in chloride concentration depending on imported water quality. Under this second option advance treatment would be implemented at the Saugus and Valencia water reclamation plants and brine would be disposed of in abandoned well fields. Dilution water would be added to discharged water as necessary to meet chloride goals.

#### 2.8.1.1 Section 303(D) List of Water Quality Limited Segments

The Section 303(d) Impaired Waterbodies List for the Upper Santa Clara River Watershed was approved by the SWRCB on October 25, 2006 and was approved by the US EPA on June 26, 2007, but was followed by reconsideration of some listings (none affecting Southern California).[11] There are a number of constituents that are on the 2006 303(d) list for Reaches 5, 6 and 7 of the Santa Clara River, and for Lake Hughes, Lake Elizabeth and Munz Lake, which are also within the Region. Table 2.8-1 provides a summary of the current listings of impaired water bodies of the Upper Santa Clara River Watershed.

### 2.8.2 Potable Water Quality

Section 2.8.1 discussed water quality as it pertained to pollution and the natural environment. This section identifies water quality regulations related to potable water delivered to customers.

The quality of any natural water is dynamic in nature. This is true for the SWP and the local groundwater. During periods of intense rainfall or snowmelt, routes of surface water movement are changed; new constituents are mobilized and enter the water while other constituents are diluted or eliminated. The quality of water changes over the course of a year. These same basic principles apply to groundwater. Depending on water depth, groundwater will pass through different layers of rock and sediment and leach different materials from those strata. Water depth is a function of local rainfall and snowmelt. During periods of drought, the mineral content of groundwater increases. Water quality is not a static feature of water, and these dynamic variables must be recognized.

Water quality regulations also change. This is the result of the discovery of new contaminants, changing understanding of the health effects of previously known as well as new contaminants, development of new analytical technology, and the introduction of new treatment technology. All water purveyors are subject to drinking water standards set by the US EPA and the California Department of Public Health (DPH). Additionally, investor-owned water utilities, such as VWC, are also subject to water quality regulation by the Public Utilities Commission. CLWA provides surface water from the SWP while local retail water purveyors combine local groundwater with treated SWP water from CLWA for delivery to their customers (LACWWD No. 36 is an exception and during most years receives water from SWP). An annual Consumer Confidence Report (CCR) is provided to all residents who receive water from CLWA and one of the four retail water purveyors. That report includes detailed information about the results of testing of the water supplied during the preceding year (e.g., 2005 *Santa Clarita Valley Water Report*).

[11] See http: www.waterboards.ca.gov/water_issues/programs/TMDL/303d_lists2006_epa.shtml

**TABLE 2.8-1**
**2006 303(D) LIST OF IMPAIRED WATER BODIES –**
**UPPER SANTA CLARA RIVER WATERSHED**

| Name | Pollutant/ Stressor | Potential Sources | Typical Data Range | Basin Plan Objective | Est. Size Affected (acres) | Proposed/ Approved TMDL Completion |
|---|---|---|---|---|---|---|
| Elizabeth Lake | Eutrophication | Nonpoint | NA | NA | 123 | 2019 |
| | Organic Enrichment/ Low Dissolved Oxygen | Nonpoint | 0.8 – 11.0 mg/L | Annual mean > 7.0 mg/L; No sample < 5.0 mg/L | 123 | 2019 |
| | pH | Nonpoint | 7.3 - 9.6 | 6.5 – 8.5 | 123 | 2019 |
| | Trash | Nonpoint | NA | NA | 123 | 2019 |
| Lake Hughes | Algae | Nonpoint | NA | NA | 21 | 2019 |
| | Eutrophication | Nonpoint | NA | NA | 21 | 2019 |
| | Fish Kills | Nonpoint | NA | NA | 21 | 2019 |
| | Odor | Nonpoint | NA | NA | 21 | 2019 |
| | Trash | Nonpoint | NA | NA | 21 | 2019 |
| Munz Lake | Eutrophication | Nonpoint | NA | NA | 6.6 | 2019 |
| | Trash | Nonpoint | NA | NA | 6.6 | 2019 |
| Santa Clara River, Reach 5 (Blue Cut to West Pier Hwy 99) | Chloride | Nonpoint/ Point | 10 – 138 mg/L | 80 – 100 mg/L | 9.4 | 2005 |
| | Coliform | Nonpoint/ Point | 20 -24,000 MPN/100 mL | 30-day log mean < 200 MPN/100 mL; no more than 10% of samples > 400 MPN/100mL | 9.4 | 2019 |
| Santa Clara River, Reach 6 (West Pier Hwy 99 to Bouquet Cyn Rd) | Chloride | Nonpoint/ Point | 10 – 138 mg/L | 80 – 100 mg/L | 5.2 | 2005 |
| | Chlorpyrifos | Unknown | NA | NA | 5.2 | 2019 |
| | Coliform | Nonpoint/ Point | 20 -24,000 MPN/100 mL | 30-day log mean < 200 MPN/100 mL; no more than 10 % of samples > 400 MPN/100mL | 5.2 | 2019 |
| | Diazinon | Unknown | NA | NA | 5.2 | 2019 |
| | Toxicity | Unknown | NA | NA | 5.2 | 2019 |
| Santa Clara River, Reach 7 (Bouquet Cyn Rd to Lang Gaging) | Chloride | Nonpoint/ Point | 10 – 138 mg/L | 80 – 100 mg/L | 21 | 2005 |
| Santa Clara River, Reach 8 (above Lang Gaging) | None | NA | NA | NA | NA | NA |

The quality of water received by individual customers will vary depending on whether they receive SWP water, groundwater, or a blend. Some will receive only SWP water at all times, while others will receive only groundwater. Others may receive water from one well at one time, water from another well at a different time, different blends of well and SWP water at other times, and only SWP water at yet other times. These times may vary over the course of a day, a week, or a year.

The Los Angeles RWQCB Basin Plan includes water quality objectives for the entire Santa Clara River Watershed.

This section provides a general description of the water quality of both imported water and groundwater supplies. A discussion of potential water quality impacts on the reliability of these supplies is also provided.

### 2.8.3 Surface Water Quality

Surface water quality data for the Upper Santa Clara River in the County are based on the DWR investigation of water quality and beneficial uses conducted for the Upper Santa Clara River Hydrologic Area (DWR 1993). The investigation found that Elizabeth and Hugh Lakes, which are both closed basin lakes, tend to have very saline characteristics due to seasonal variations in runoff. Castaic Lake and Lagoon water quality is influenced by its thermal stratification and biochemical processes. Additionally, Castaic is sodium chloride in character from its deliveries of SWP water. Bouquet Canyon has ranged from sodium-calcium bicarbonate to sodium bicarbonate in character from its deliveries of water from the Los Angeles Aqueduct (Mono-Owens water).

The surface water quality data in the Upper Santa Clara River are obtained from continuous sampling records at two (2) gaging stations: 1) the Old Highway Bridge and 2) the Los Angeles - Ventura County Line and historical records at two stations near Ravenna and Lang. The period of water quality records for these stations is from 1951 to 1990 (UWCD and CLWA 1996). Table 2.8-2 provides a summary of the available TDS and chloride data for surface water locations in the Region since 1980.

**TABLE 2.8-2**
**SURFACE WATER QUALITY SUMMARY**

| | TDS | | | Chloride | | |
|---|---|---|---|---|---|---|
| **Location** | **Date Range** | **Value Range (mg/L)** | **Number of Values** | **Date Range** | **Value Range (mg/L)** | **Number of Values** |
| 04N16W17SW1 | 1/30/80 to 11/27/00 | 699.0 – 1,090.0 | 11 | 1/30/80 to 11/27/00 | 60.0 – 118.0 | 11 |
| 04N17W14SW1 | 3/18/97 | 370.0 | 1 | 3/18/97 | 59.0 | 1 |
| 403STC004 | -- | -- | -- | 10/30/01 to 2/25/03 | 73.3 – 112.0 | 2 |
| 403STC019 | -- | -- | -- | 10/31/01 to 2/25/03 | 81.2 – 117.0 | 2 |
| 403STC027 | -- | -- | -- | 11/13/01 to 2/24/03 | 23.3 – 30.6 | 2 |
| 403STC068 | -- | -- | -- | 2/25/03 | 64.3 | 1 |
| 403STCCTC | -- | -- | -- | 11/13/01 | 187.0 | 1 |
| 403STCSFO | -- | -- | -- | 10/31/01 | 26.5 | 1 |
| Castaic Creek | 9/24/90 | 907.0 | 1 | 9/24/90 | 138.0 | 1 |
| OF101 | 8/31/05 | 770.0 | 1 | -- | -- | -- |
| OS101 | 8/30/05 | 930.0 | 1 | -- | -- | -- |
| Potrerro Road | 6/19/96 to 9/11/96 | 888.0 -905.0 | 2 | 6/19/96 to 9/11/96 | 101.0 – 107.0 | 2 |
| Saugus WRP | 1/01/80 to 7/17/05 | 141.0 – 874.0 | 313 | 1/17/80 to 7/17/05 | 84.0 – 200.0 | 322 |
| SCR-Hwy 99 | 9/21/92 to 9/11/96 | 739.0 – 897.0 | 4 | 9/21/92 to 9/11/96 | 87.0 – 108.0 | 4 |
| SCR- Old Hwy 99 | 5/11/88 to7/07/94 | 78.0 – 1,136.0 | 69 | 5/11/88 to7/07/94 | 9.8 – 137.0 | 69 |
| SCR –Old Hwy Bridge | 1/30/80 to 7/27/94 | 608.0 – 1,090.0 | 49 | 1/08/80 to 8/28/00 | 9.8 – 540.0 | 235 |
| SCR-RA | 3/12/93 to 4/13/05 | 364.0 – 655.0 | 6 | 5/21/98 to 4/13/05 | 21.6 – 133.0 | 6 |
| SCR-RB | 3/12/90 to 7/20/05 | 452.0 – 1,530.0 | 73 | 11/06/95 to 7/22/05 | 88.3 – 336.0 | 77 |
| SCR-RC | 3/12/90 to 7/20/05 | 604.0 – 1,850.0 | 71 | 11/06/95 to 6/15/05 | 31.3 – 170.0 | 50 |
| SCR-RD | 3/12/90 to 7/20/05 | 0.0 – 1,980.0 | 73 | 11/06/95 to 7/22/05 | 30.5 – 190.0 | 94 |
| SCR-RE | 3/12/90 to 7/20/05 | 0.0 – 1,496.0 | 73 | 9/24/90 to 7/20/05 | 47.1 – 140.0 | 57 |
| SR101 | 8/30/05 | 390.0 | 1 | -- | -- | -- |
| SR102 | 8/30/05 | 430.0 – 490.0 | 2 | -- | -- | -- |
| SR103 | 8/30/05 | 570.0 | 1 | -- | -- | -- |
| SR104 | 8/31/05 | 760.0 | 1 | -- | -- | -- |
| SR105 | 8/31/05 | 760.0 | 1 | -- | -- | -- |
| Valencia WRP | 1/01/80 to7/17/05 | 371.0 – 961.0 | 916 | 1/17/80 to 7/17/05 | 67.5 – 341.0 | 328 |

Source: CH2M Hill 2004b

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Two trends observed in the water quality data collected in the Upper Santa Clara River are indicated in UWCD and CLWA (1996):

1. An increase in concentration of the TDS and sulfate downstream, with the maximum concentrations of TDS and sulfate at the County Line station (the most downstream) are about ten times higher than that at Lang station (the most upstream).

2. A general decrease in concentrations of TDS and sulfate at the stations over their periods of record. Unfortunately, these data do not reflect recent changes in the surface water quality conditions that, in turn, would reflect changes in the hydrologic conditions in the watershed.

Nitrate ranged from 9 to 35 milligrams per liter (mg/L) nitrate at Blue Cut near the County line but it generally occurs in very low concentrations in the undeveloped drainages north of the Santa Clara River. Chloride concentrations tend to also be relatively low in undeveloped portions of the watershed and higher in developed areas. Sources of chloride include water softeners, SWP water, and wastewater effluent. In 2000, chloride concentrations ranged from 80 to 137 mg/L at Blue Cut and averaged 148 and 170 mg/L in effluent from the Saugus and Valencia WRPs, respectively (Los Angeles RWQCB 2006).

The State's Surface Water Ambient Monitoring Program (SWAMP) analyzed 30 random and eight (8) discrete sites throughout the watershed (includes both Upper and Lower Santa Clara River Basins) beginning in 2001 and continuing in 2003. All sites were sampled for field measurements (dissolved oxygen, pH, depth, temperature, velocity, conductivity, and turbidity), conventional water chemistry, nutrients (ammonia, chlorophyll-a, nitrate, nitrite, and phosphate), salts (sulfate, chloride, TDS, and boron), toxicity, and bioassessment. The discrete sites were also sampled for trace organics, bioaccumulation, water column and sediment metals, sediment grain size, and enzyme-linked immunosorbent assays for chlorpyrifos and diazinon (Kamer 2005).

Results from this sampling indicated:

- Dissolved oxygen saturation of <90 percent at 15 of 38 sites
- High pH at four sites
- Inorganic nitrogen concentrations exceeding Basin Plan objectives at seven sites
- Total and un-ionized ammonia at three sites
- Total ammonia at one site
- Un-ionized ammonia at one site, and nitrate at two sites
- Phosphorus concentrations exceeding US EPA recommendations in 13 sites
- TDS concentrations exceeded Basin Plan objectives at 12 sites
- Sulfate exceeding Basin Plan objectives at 10 sites
- Elevated chloride in seven sites
- Elevated boron at three sites

(Source: Kamer 2005)

Of the sites analyzed for metals in sediment, tissue and water, four sites had exceeded US EPA criteria for aluminum in water, seven sites had arsenic levels in tissue above Office of Environmental Health Hazard Assessment (OEHHA) screening values and US FWS guidelines, and one site had elevated copper levels in tissue. Additionally, three sites had elevated sediment metals levels above sediment quality guidelines: cadmium in Piru Creek, copper and lead in Castaic Creek, and a suite of metals in San Francisquito Canyon (Kamer 2005).

Analysis of organic compounds at tributary sites, showed, Dichloro-Diphenyl-Trichloroethane (DDT) and Polychlorinated Biphenyls (PCBs) levels exceeding established criteria at all sites, elevated chlordane at three sites, elevated chlorpyrifos and diazinon at Bouquet Canyon and Castaic Creek, elevated Polycyclic Aromatic Hydrocarbons (PAHs) at Blue Cut, and elevated DDE and DDT in sediments in the estuary (Kamer 2005). Toxicity occurred at 13 of the randomly-selected sites and in Bouquet Canyon and the estuary.

The bioassessment data indicate that ecological condition ranged from poor or very poor for one half to at least fair in the other half of the sites. Index of Biological Integrity (IBI) scores were "Good" at six sites, "Fair" at 13 sites, "Poor" at 11 sites and "Very Poor" at seven sites (Kamer 2005).

### 2.8.4 Imported Water Quality

CLWA provides SWP water to the Valley. The source of SWP water is rain and snow of the Sierra Nevada, Cascade, and Coastal mountain ranges. This water travels to the Delta through a series of rivers and various SWP structures. There it is pumped into a series of canals and reservoirs, which provide water to urban and agricultural users throughout the San Francisco Bay Area and central and southern California. The most southern reservoir on the West Branch of the SWP California Aqueduct is Castaic Lake. CLWA receives water from Castaic Lake and distributes it to the retail water purveyors following treatment.

*Rio Vista Water Treatment Plant*

Perhaps the most important difference in quality between surface water and groundwater is the presence of microbes in surface water. Surface water is exposed to a variety of microbial contaminants while groundwater in general is not. As a result, there are considerably more water quality regulations for surface water providers. CLWA has two surface water treatment plants, the Rio Vista Water Treatment Plant and the Earl Schmidt Water Filtration Plant, whose function is to ensure the safety of the water by eliminating microbial contaminants. Both of these plants have a multi-barrier strategy. The first barrier is the application of ozone, a powerful disinfectant, which has the ability to kill a broad range of microbes. The second barrier is the addition of chemicals to remove particles from the water, which can hide and protect microbes. Removing particles improves the anti-microbial action of the disinfectants. The water is then passed through two sets of filters, and chloramines are then added to the water. Chloramines are similar to chlorine and prevent the growth of bacteria in the distribution system, which delivers water from the treatment plants to the retail water purveyors.

An important property of SWP water is the chemical make up caused by its passage through the Delta. The Delta is basically a very large marsh (or estuary) with large masses of plants and peat soils. These contribute organic materials (TOC) to the water. Salt water can also move into the Delta from San Francisco Bay and the Pacific Ocean. This brings in salts, notably bromide and chloride. None of these chemicals are harmful in and of themselves; however, when bromide and TOC react with disinfectants such as ozone, chlorine, or chloramines, a reaction occurs forming substances known as disinfection by-products (DBPs). A variety of health-based concerns are associated with DBPs (2005 *Santa Clarita Valley Water Report*).

Another important property of SWP water is the mineral content. SWP water is generally low in dissolved minerals, such as calcium, magnesium, sodium, potassium, iron, manganese, nitrate, and sulfate. Most of these minerals do not have health based concerns, but "hard" water (water high in calcium, magnesium, and iron) can cause a number of problems for consumers, such as the formation of white crusts in plumbing fixtures, water spots, damage to water heaters, and excess use of soaps. Nitrate is the main exception, as it has significant health effects for infants; however, the nitrate content of SWP water is very low. Also of significance is the chloride content. Although not a human health risk, chloride can have a negative impact on agricultural activities and regulatory compliance for local sanitation agencies. The chloride content of SWP water varies widely from well over 100 mg/L to below 40 mg/L, depending on Delta conditions.

All surface waters can have taste and odor problems caused by the growth of algae in reservoirs, such as Castaic Lake. Under certain conditions, algae can grow in large mats, which then die, releasing foul smelling chemicals. Although harmless, the taste and odor causing chemicals can generally be very unpleasant for consumers.

### 2.8.5 Groundwater Quality

In a 2006 data gap analysis for water quality monitoring, conducted by AMEC, the Upper Santa Clara River Watershed ranked as "data moderate" to "data rich" for conventional parameters, metals (with the exception of aluminum), nitrates, and organic compounds. The data sets for these constituents was spatially biased to the lower third (downstream) portions of the watershed, with no or poor data for the uppermost portion.

#### 2.8.5.1 Agua Dulce Groundwater Basin

The water quality in the Agua Dulce groundwater basin is generally calcium bicarbonate in character with a mixed calcium magnesium bicarbonate character deeper down. TDS ranges from 330 to 520 mg/L and total hardness ranges from 230 to 330 mg/L (Slade 2004). Although some random inorganic compounds have been detected, all levels have been well below the allowed Maximum Contaminant Levels (MCLs). The major water quality issue for the basin is the presence of nitrate. Nitrate has been detected as high as 69.1 mg/L in one well in the basin, which exceeds the MCL of 45 mg/L for this constituent. More typical ranges for nitrate in the basin are between 20 and 40 mg/L (Slade 2004).

#### 2.8.5.2 Acton Valley Groundwater Basin

Groundwater in this basin is generally classified as calcium-bicarbonate (DWR 2002a), although groundwater in the broad valley north of Acton exhibited calcium-magnesium bicarbonate to

calcium-magnesium-sulfate character (Slade 1990). Based on sampling of 5 public water-supply wells, DWR reported TDS concentrations ranging from 424 to 712 mg/L, with an average concentration of 579 mg/L (DWR 2002a). During June 1988 to June 1989, the concentrations of TDS ranged from 279 to 480 mg/L, total hardness (TH) ranged from 172 to 271 mg/L, and nitrate concentrations ranged from 3.9 to 24.7 mg/L (Slade 1990, UWCD and CLWA 1996). The TDS content is greatly influenced by deep percolation of the rainfall runoff; it increases as rainfall declines and vice versa (UWCD and CLWA 1996).

DWR evaluation (DWR 2002a) indicated high concentrations of TDS, sulfate and chloride in 75 wells in the northern part of the basin, with some concentrations exceeding drinking water standards (Slade 1990; DWR 1993). Nitrate concentrations in two wells were above drinking water standards as well (DWR 1968).

#### 2.8.5.3 Santa Clara River Valley East Groundwater Subbasin

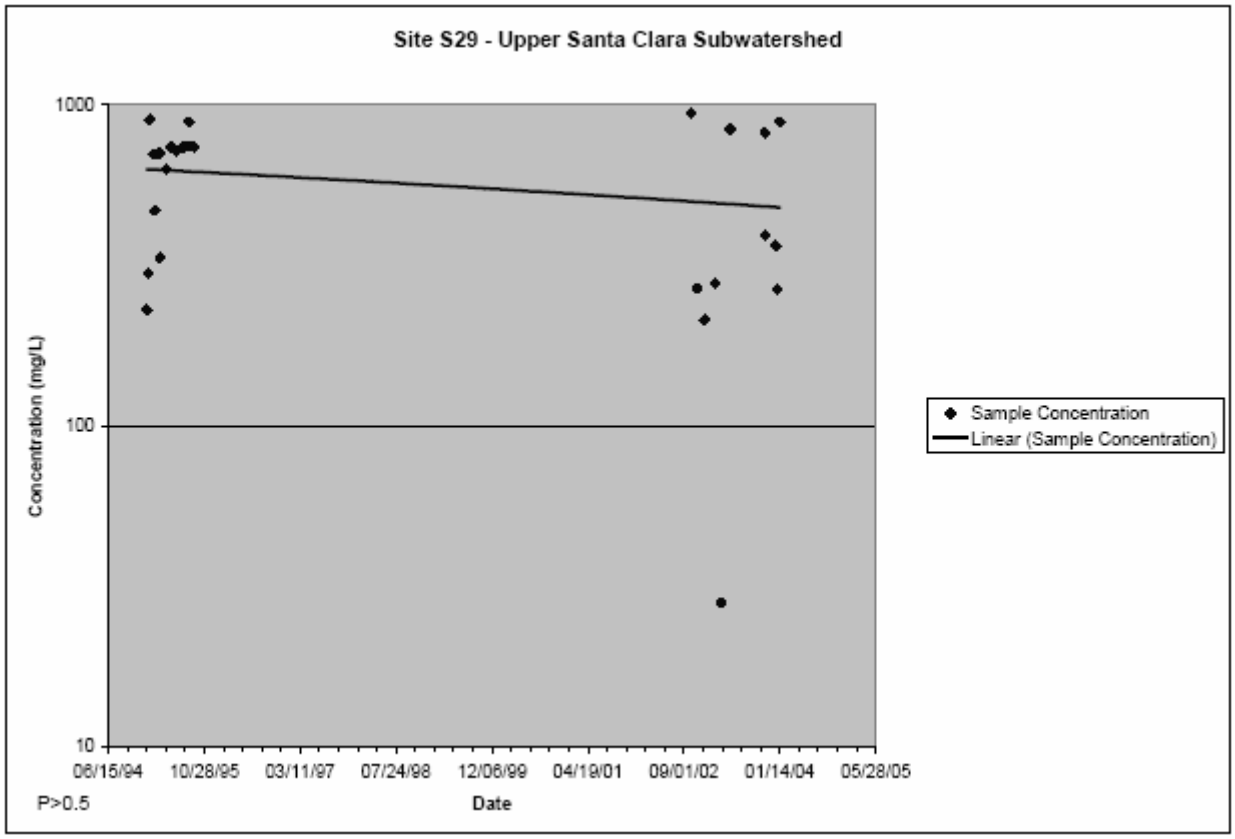
As previously mentioned, this subbasin has two sources of groundwater. Most local wells draw water from the Alluvial Aquifer. A smaller portion of the Valley's water supply is drawn from the Saugus Formation, a much deeper aquifer than the Alluvial Aquifer. The quality components of these aquifers differ with changing rainfall conditions. The two aquifers' water quality changes at different rates and much more slowly than surface water.

Local groundwater generally does not have microbial water quality problems. Parasites, bacteria, and viruses are filtered out as the water percolates through the soil, sand, and rock on its way to the aquifer. Even so, disinfectants are added to local groundwater when it is pumped by wells to protect public health. Local groundwater has very little TOC and generally has very low concentrations of bromide, minimizing potential for DBP formation. Taste and odor problems from algae are not an issue with groundwater.

The mineral content of local groundwater is very different from SWP water. The groundwater is very "hard," in that it has high concentrations of calcium and magnesium (approximately 250 to 600 mg/L, as developed in the CLWA et al 2005 *Annual Water Quality Report*). Groundwater may also contain higher concentrations of nitrates and chlorides when compared to SWP water. However, all groundwater meets or exceeds drinking water standards.

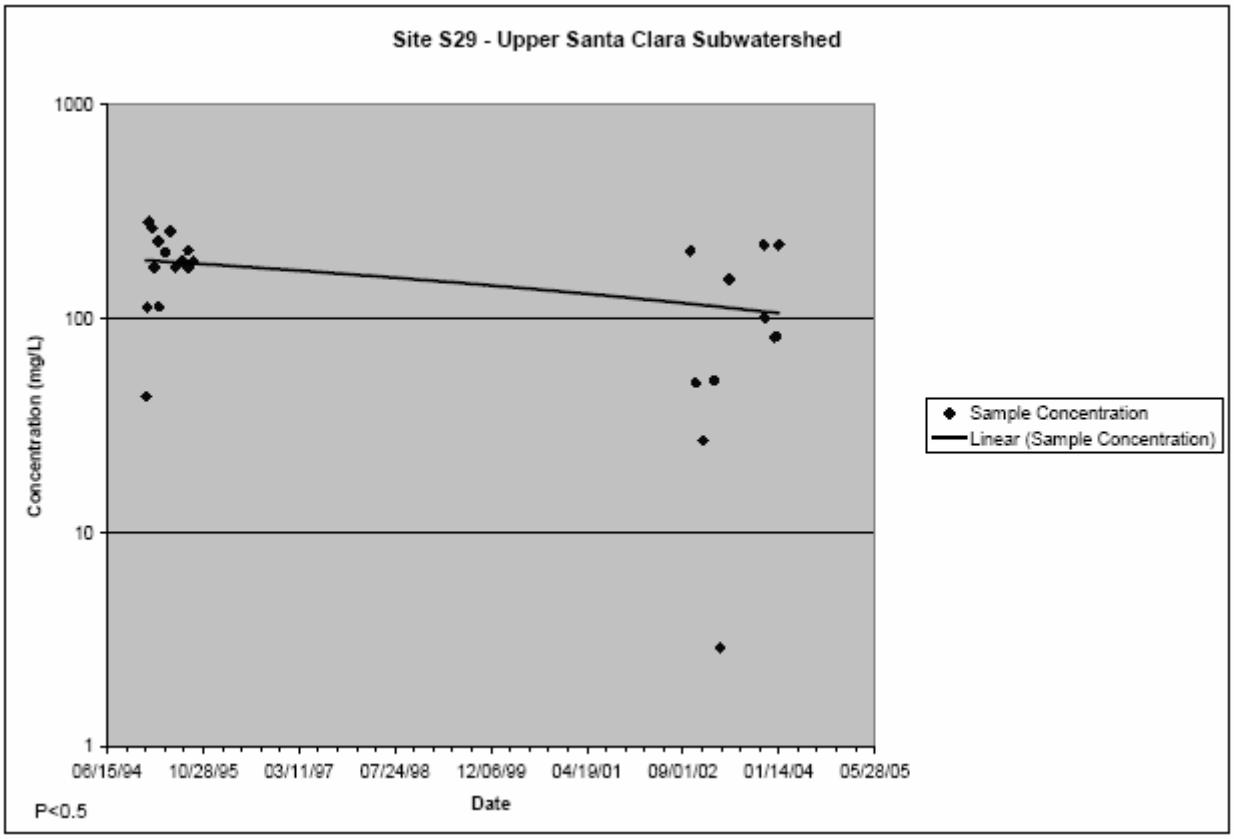
The following sections describe the groundwater quality of the Alluvium and Saugus formations. Figures 2.8-1a through 2.8-1d are plots of constituents over time for the Upper Santa Clara Watershed as presented in the AMEC Earth & Environment 2006 *Comprehensive Water Quality Monitoring Plan for the Santa Clara River Watershed*.

**FIGURE 2.8-1a**
**SUMMARY OF TDS CONCENTRATIONS OVER TIME**



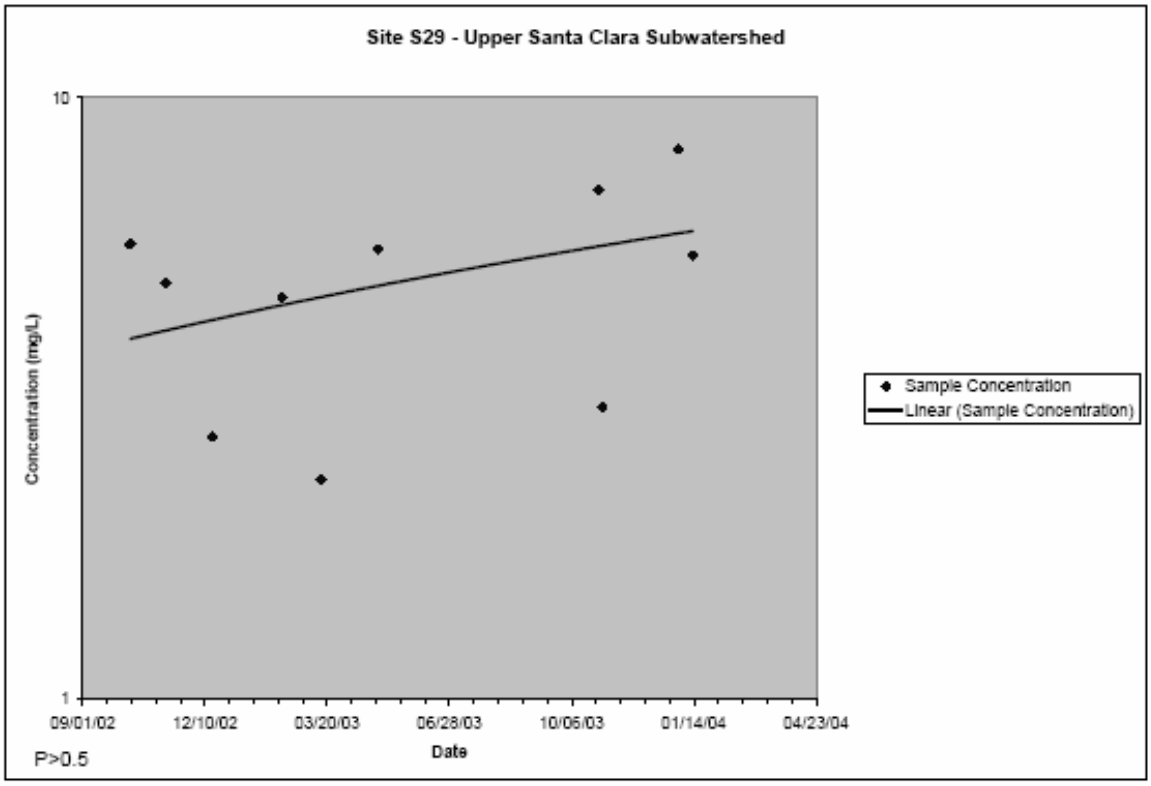

Source: AMEC 2006.

**FIGURE 2.8-1b**
**SUMMARY OF SULFATE CONCENTRATIONS OVER TIME**



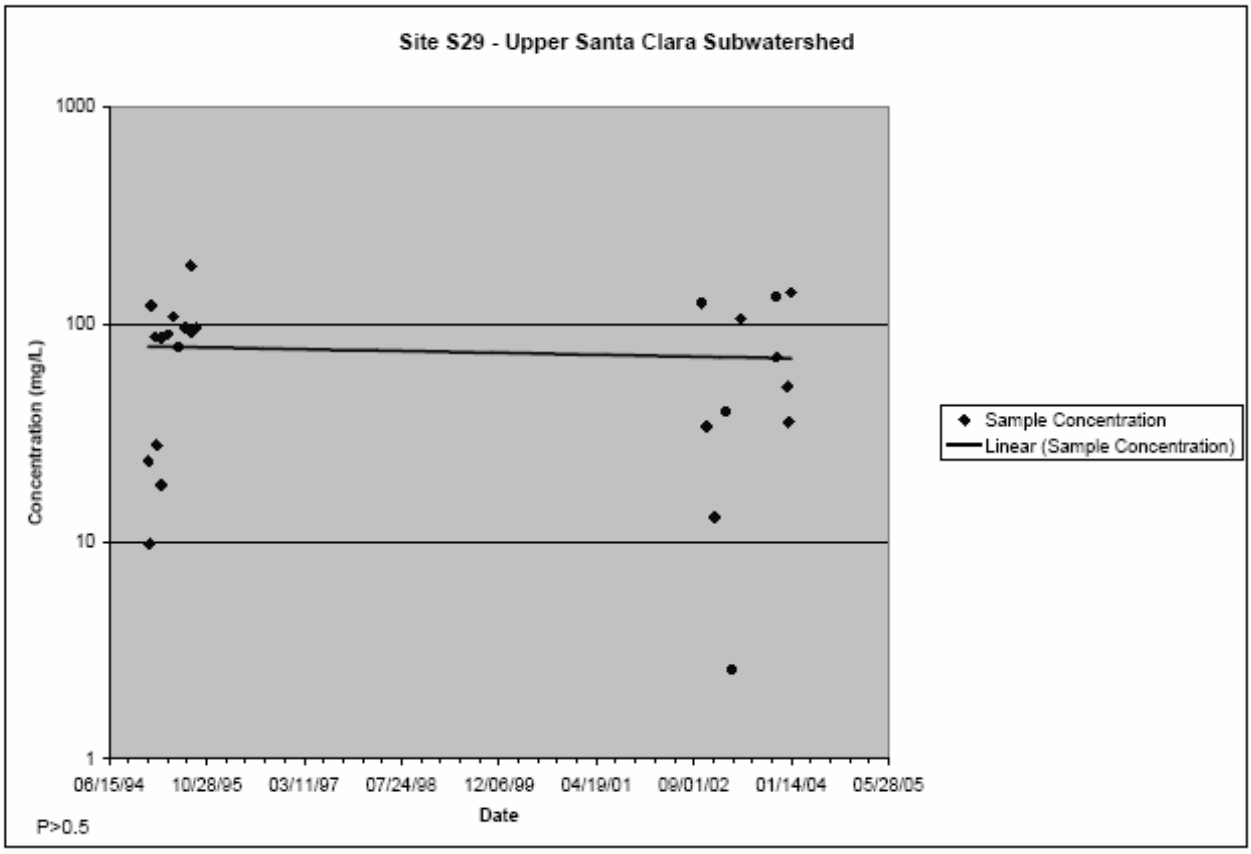

Source: AMEC 2006.

**FIGURE 2.8-1c**
**SUMMARY OF NITRATE CONCENTRATIONS OVER TIME**




Source: AMEC 2006.

**FIGURE 2.8-1d**
**SUMMARY OF CHLORIDE CONCENTRATIONS OVER TIME**




Source: AMEC 2006.

### *2.8.5.3.1 Groundwater Quality – Alluvial Aquifer*

Groundwater quality is a key factor in assessing the Alluvial Aquifer as a municipal and agricultural water supply. In terms of the aquifer system, there is no convenient long-term record of water quality (i.e., water quality data in one or more single wells) that spans several decades and continues to the present. Thus, in order to examine a long-term record of water quality in the Alluvium, individual records have been integrated from several wells completed in the same aquifer materials and in close proximity to each other to examine historical trends in general mineral groundwater quality throughout the subbasin. Based on these records of groundwater quality, wells within the Alluvium have experienced historical fluctuations in concentrations of TDS, as well as corresponding fluctuation of individual constituents of TDS. In general, however, there has been no long-term trend toward groundwater quality degradation.

Water quality in the Alluvium generally exhibits an inverse correlation with precipitation and streamflow, with a stronger correlation in the easternmost portion of the subbasin, where groundwater levels fluctuate the most. Wet periods have produced substantial recharge of higher quality (low TDS) water, and dry periods have resulted in declines in groundwater levels, with a corresponding increase in TDS (and individual contributing constituents) in the deeper

parts of the Alluvium. The aquifer varies from calcium bicarbonate character in the east to calcium sulfate character in the west. Nitrate levels decline in the west and TDS levels increase (Los Angeles RWQCB 2006).

#### *2.8.5.3.2 Groundwater Quality – Saugus Formation*

Due to the much more limited number of wells and the limited spatial extent of groundwater development in the Saugus Formation, long-term groundwater quality data are not sufficiently extensive to permit any sort of basin-wide analysis or assessment of pumping-related impacts on quality. Based on the most complete historical record (over the last 35 years) however, groundwater quality in the Saugus has remained generally constant. The Saugus Formation is, on a groundwater quality basis, a viable agricultural and municipal water supply (CLWA 2003a). The aquifer varies from calcium bicarbonate character in the southeast to calcium sulfate character in the center, and calcium bicarbonate in the west. TDS ranges from 500 to 900 mg/L (Los Angeles RWQCB 2006).

#### *2.8.5.3.3 Groundwater Contamination (Perchlorate)*

The most notable groundwater quality issue in the basin centers around the detection and impact of perchlorate on several Saugus and one Alluvial well in the central part of the basin near the location of the former Whittaker-Bermite facility. Perchlorate was originally detected in four Saugus wells operated by the retail water purveyors in the eastern part of the Saugus Formation in 1997. Since then, the four Saugus municipal supply wells have been out of water supply service. While the inactivation of those wells does not limit the ability of the purveyors to meet water demands, there is an ongoing effort to restore impacted pumping capacity and contain potential perchlorate migration in the Saugus Formation.

In 2002, one Alluvial well located near the former Whittaker-Bermite facility was inactivated for municipal water supply due to detection of perchlorate slightly below the Notification Level. In early 2005, perchlorate was detected in a second Alluvial well, VWC's Well Q2. In response, VWC removed the well from active service and commissioned an analysis and report assessing the impact of, and response to, the perchlorate contamination of that well. In 2006, a perchlorate removal treatment facility was installed and became operational, and the well was returned to service. Another well, VWC Well V-157 was permanently closed and replaced with the construction of new Saugus Well V-206 located in an area of the Saugus Formation not impacted by perchlorate. Currently, four wells (Saugus 1 and 2, NC-11, and Stadium well) remain temporarily offline due to perchlorate contamination. Locations of the impacted wells, and other nearby non-impacted wells, relative to the Whittaker-Bermite site are shown on Figures 2.8-2 and 2.8-3. The local retail water purveyors continue to test for perchlorate in active water supply wells near the Whittaker-Bermite site, and there has been no additional detection of perchlorate in any other municipal well.

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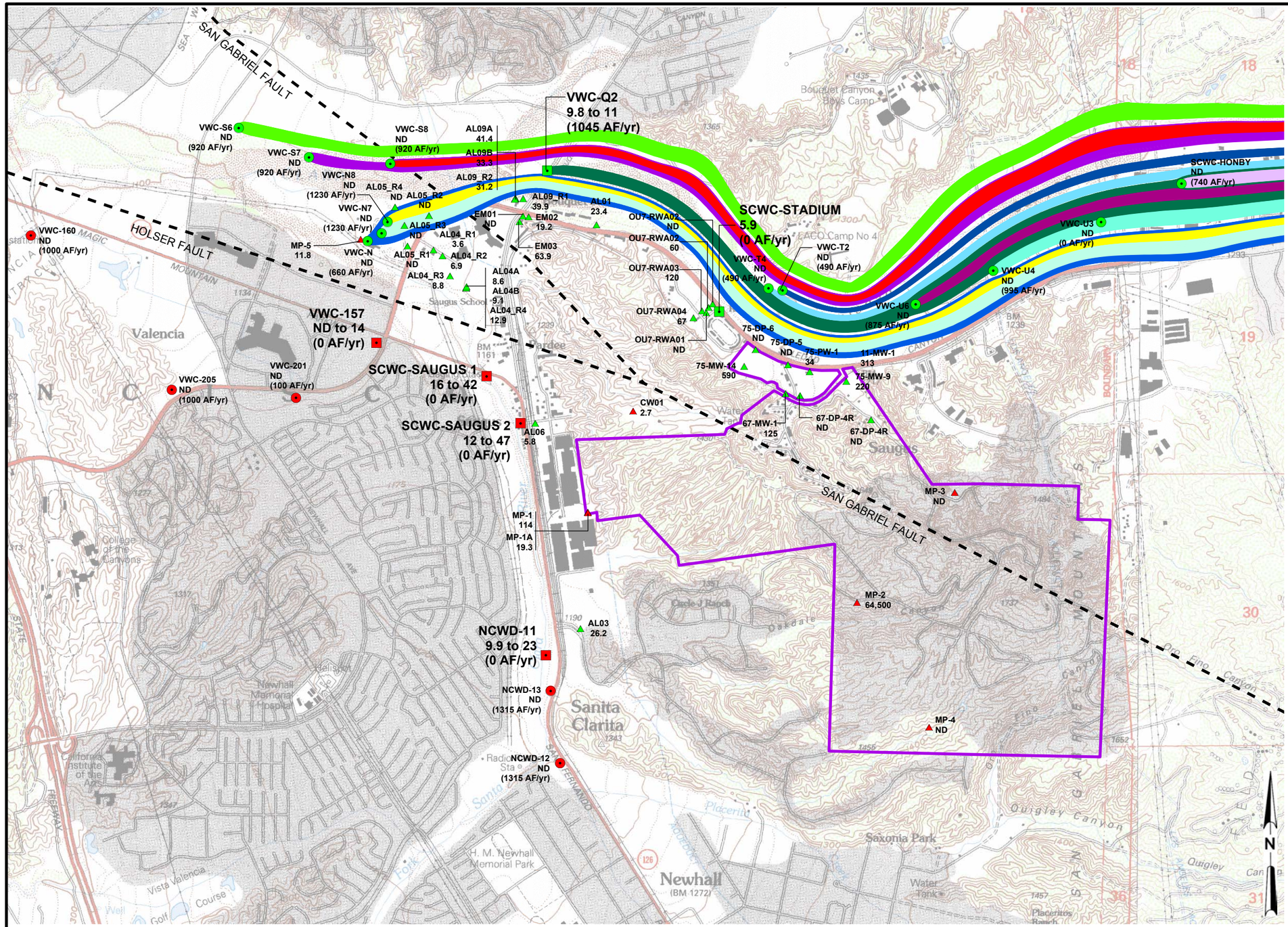


## LEGEND

**CONTAMINATED PRODUCTION WELL**

- ALLUVIUM
- SAUGUS

**UNCONTAMINATED PRODUCTION WELL**

- ALLUVIUM
- SAUGUS

**MONITORING WELL**

- ALLUVIUM
- SAUGUS

**TWO-YEAR GROUNDWATER CAPTURE ZONE**

- SCWC-HONBY
- VWC-N
- VWC-N7
- VWC-N8
- VWC-Q2
- VWC-S6
- VWC-S7
- VWC-S8
- VWC-T2
- VWC-T4
- VWC-U4
- VWC-U6
- WHITTAKER-BERMITE PROPERTY BOUNDARY

**NOTES:**

1. VALUES PRESENTED UNDER WELL SYMBOLS REPRESENT PERCHLORATE CONCENTRATION IN GROUNDWATER (µg/L).
2. PUMPING VALUES IN PARENTHESES ARE ANNUAL PUMPING VOLUMES
3. ND = PERCHLORATE NOT DETECTED IN GROUNDWATER SAMPLE.
4. µg/L = MICROGRAMS PER LITER; AF/yr = acre feet per year
5. FLOWPATHS ARE DELINEATED USING AN EFFECTIVE POROSITY OF 0.10 IN THE ALLUVIAL AQUIFER AND 0.05 IN THE SAUGUS FORMATION.

**FIGURE 2.8-2**
**FORECASTED TWO-YEAR GROUNDWATER CAPTURE ZONES FOR ACTIVE ALLUVIAL PRODUCTION WELLS LOCATED CLOSEST TO THE WHITTAKER-BERMITE PROPERTY**
SANTA CLARITA, CALIFORNIA

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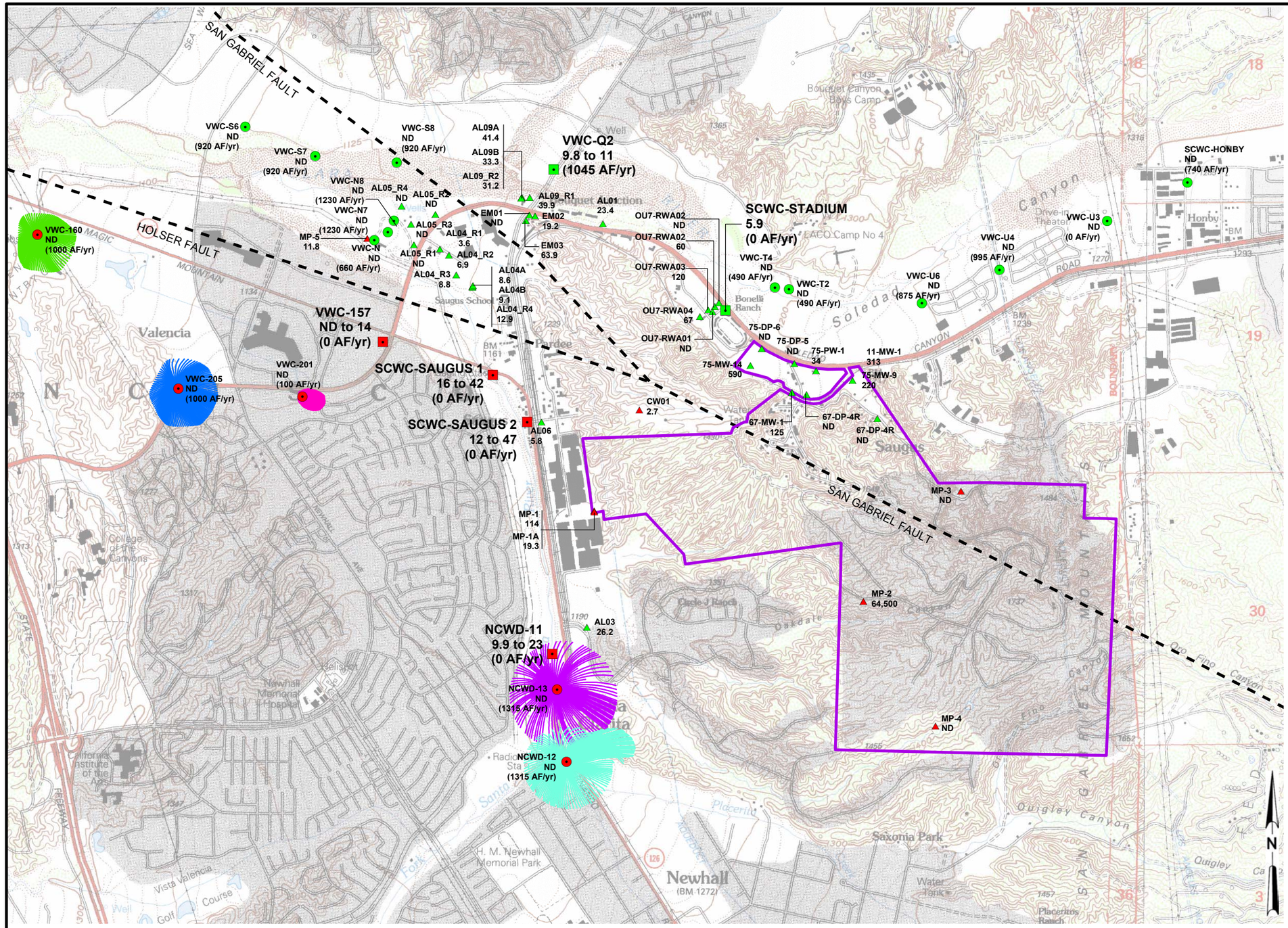


## LEGEND

**CONTAMINATED PRODUCTION WELL**

- ALLUVIUM
- SAUGUS

**UNCONTAMINATED PRODUCTION WELL**

- ALLUVIUM
- SAUGUS

**MONITORING WELL**

- ALLUVIUM
- SAUGUS

**TWO-YEAR GROUNDWATER CAPTURE ZONE**

- NC-12
- NC-13
- VWC-160
- VWC-201
- VWC-205
- WHITTAKER-BERMITE PROPERTY BOUNDARY

**NOTES:**

1. VALUES PRESENTED UNDER WELL SYMBOLS REPRESENT PERCHLORATE CONCENTRATION IN GROUNDWATER (µg/L).
2. PUMPING VALUES IN PARENTHESES ARE ANNUAL PUMPING VOLUMES.
3. ND = PERCHLORATE NOT DETECTED IN GROUNDWATER SAMPLE.
4. µg/L = MICROGRAMS PER LITER; AF/yr = acre feet per year
5. FLOWPATHS ARE DELINEATED USING AN EFFECTIVE POROSITY OF 0.10 IN THE ALLUVIAL AQUIFER AND 0.05 IN THE SAUGUS FORMATION.

**FIGURE 2.8-3**
**FORECASTED TWO-YEAR GROUNDWATER CAPTURE ZONES FOR ACTIVE SAUGUS PRODUCTION WELLS LOCATED CLOSEST TO THE WHITTAKER-BERMITE PROPERTY**
SANTA CLARITA, CALIFORNIA

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RDD \\ODIN\PROJ2\55\SANTACLARITA_MOU\FIGURES\MXD\OCT2005\FIG5-02.MXD FIG05-02.PDF 10/7/2005 09:50:30

## 2.8.6 Water Quality Impacts on Reliability

The detection of perchlorate in Valley groundwater supplies has raised concerns over the reliability of those supplies, in particular the Saugus Formation, where four wells have been removed from active service as a result of perchlorate. Planning for remediation of the perchlorate and restoration of the impacted well capacity is substantially underway. While that work is being completed, non-impacted production facilities can be relied upon for the quantities of water projected to be available from the Alluvial Aquifer and Saugus Formation during the time necessary to restore perchlorate-impacted wells. CLWA, the local retail water purveyors, the California Department of Toxic Substances Control (DTSC), and the US ACE continue to work closely on the perchlorate contamination issue.

### 2.8.6.1 Restoration of Perchlorate Impacted Water Supply

Since the detection of perchlorate in 1997, CLWA and the retail water purveyors have recognized that one element of an overall remediation program would most likely include pumping from impacted wells, or from other wells in the immediate area, to establish hydraulic conditions that would control the migration of contamination from further impacting the aquifer in a downgradient (westerly) direction. Thus, CLWA and the retail water purveyors expect that the overall perchlorate remediation program could include dedicated pumping from some or all of the impacted wells, with appropriate treatment, such that two objectives could be achieved. The first objective is control of subsurface flow and protection of downgradient wells, and the second is restoration of some or all of the contaminated water supply. Not all impacted capacity is required for control of groundwater flow. The remaining capacity would be replaced by construction of replacement wells at non-impacted locations.

In cooperation with state regulatory agencies and investigators working for Whittaker-Bermite, CLWA and the local retail water purveyors developed an off-site plan that focuses on the concepts of groundwater flow control and restored pumping capacity and is compatible with on-site and possibly other off-site remediation activities. Specifically relating to water supply, the plan includes the following:

*Perchlorate Treatment Project*

- Constructing and operating a water treatment process that removes perchlorate from two impacted wells such that the produced water can be used for municipal supply.
- Hydraulically containing the perchlorate contamination that is moving from the Whittaker-Bermite site toward the impacted wells by pumping the wells at rates that will capture water from all directions around them.
- Protecting the down gradient non-impacted wells through the same hydraulic containment that results from pumping two of the impacted wells.

- Restoring the annual volumes of water pumped from the impacted wells before they were inactivated and also restoring the wells' total capacity to produce water in a manner consistent with the retail water purveyors' operating plan for groundwater supply described above.

Under the current schedule for implementation of the plan to restore contaminated water supply (wells), construction started in 2007 and treatment should start in December 2008. Included in the schedule is a planned extended test of the wells that will be returned to service as part of restoring contaminated water supply, and that will also be operated to extract contaminated water and control the migration of contamination in the aquifer. Concurrent with the testing of the wells, several specific ion exchange resins will also be tested to evaluate their performance and longevity.

In light of the preceding, with regard to the adequacy of groundwater as the local component of water supply in this plan, the impacted capacity will remain unavailable through 2008, during which time the non-impacted groundwater supply will be sufficient to meet near-term water requirements. Afterwards, the total groundwater capacity will be sufficient to meet the full range of normal and dry-year conditions as provided in the operating plan for groundwater supply.

Returning the contaminated Saugus wells to municipal water supply service by installing treatment requires issuance of permits from DPH before the water can be considered potable and safe for delivery to customers. The permit requirements are contained in DPH Policy Memo 97-005 for direct domestic use of impaired water sources. Before issuing a permit to a water utility for use of an impaired source as part of the utility's overall water supply permit, DPH requires that studies and engineering work be performed to demonstrate that pumping the wells and treating the water will be protective of public health for users of the water. Policy Memo 97-005 requires that DPH review the local retail water purveyor's plan, establish appropriate permit conditions for the wells and treatment system, and provide overall approval of returning the impacted wells to service for potable use. Ultimately, the implementation of the plan and the DPH requirements are intended to ensure that the water introduced to the potable water distribution system has no detectable concentration of perchlorate.

The DPH Policy Memo 97-005 requires, among other things, the completion of a source water assessment for the impacted wells intended to be returned to service. The purpose of the assessment is to determine the extent to which the aquifer is vulnerable to continued migration of perchlorate and other contaminants of interest from the Whittaker-Bermite site. The assessment includes the following:

- Delineation of the groundwater capture zone caused by operating the impacted wells
- Identification of contaminants found in the groundwater at or near the impacted wells
- Identification of chemicals or contaminants used or generated at the Whittaker-Bermite facility
- Determination of the vulnerability of pumping the impacted wells to these contaminant sources

CLWA is currently working directly with the retail water purveyors and consultants on development of the DPH Policy Memo 97-005 permit application. Two coordination workshops have already been held. Drafts of all six elements of Policy Memo 97-005 have been submitted

to DPH and the retail purveyors for review, including: the Source Water Assessment; Raw Water Quality Characterization; Source Protection Plan; Effective Monitoring and Treatment Evaluation; Human Health Risk Assessment; and the Alternatives Sources Evaluation. The CEQA process for the *CLWA Groundwater Containment, Treatment, and Restoration Project*, for which the 97-005 process is being conducted, was completed in August 2005.

CLWA's efforts have included the development of a model used to simulate the capture and control of perchlorate by restoring impacted wells, with treatment. The modeling analysis indicates that the pumping of impacted wells SCWD-Saugus 1 and SCWD-Saugus 2 on a nearly continual basis will effectively contain perchlorate migrating westward in the Saugus Formation from the Whittaker-Bermite property. The analysis also indicates that (1) no new production wells are needed in the Saugus Formation to meet the perchlorate containment objective, (2) impacted well NCWD-11 is not a required component of the containment program, and (3) pumping at SCWD-Saugus 1 and SCWD-Saugus 2 is necessary to prevent migration of perchlorate to other portions of the Saugus Formation.

The perchlorate containment report also includes the general design of a sentinel groundwater monitoring network and program required by DPH as part of its Policy Memo 97-005 permitting process. The perchlorate containment report was approved by DTSC in November 2004. With that approval, the model is now being used to support the source water assessment and the balance of the DPH permitting process.

## 2.9 Water Demand

A summary of the Region's historical water demand, as summarized in the CLWA 2005 UWMP, is provided in Figure 2.9-1. The Figure illustrates the steady increase in water demand since 1980. This figure does not include private pumping within the County because private pumping data is not available.

Table 2.9-1 presents the historical accounts and deliveries by retail purveyor since 1990 for the Region. The type of customer accounts included in the table are single family homes, multi-family homes, commercial, industrial, institutional/government, and landscape.

**FIGURE 2.9-1**
**HISTORICAL ANNUAL TOTAL DEMAND**
**(includes Agricultural Demand/Private Uses)**

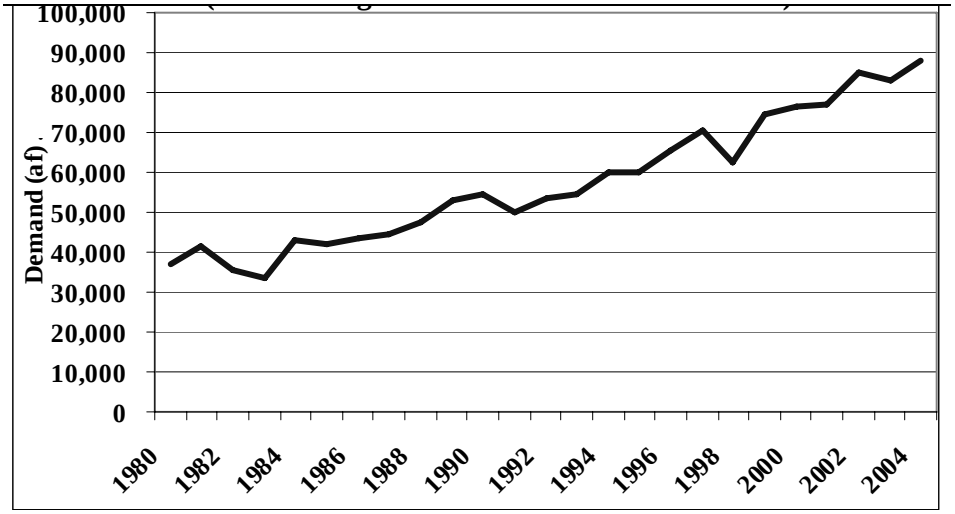



**TABLE 2.9-1**
**HISTORICAL ACCOUNTS AND DELIVERIES BY RETAIL PURVEYORS (AF)**

| Purveyor | | 1990 | 1992 | 1994 | 1996 | 1998 | 2000 | 2002 | 2004 |
|---|---|---|---|---|---|---|---|---|---|
| CLWA | No. accounts | 18,550 | 19,000 | 19,400 | 19,650 | 20,300 | 21,970 | 24,175 | 26,161 |
| SCWD | Deliveries (AF) | 18,503 | 17,551 | 19,911 | 22,006 | 20,319 | 25,280 | 28,434 | 29,191 |
| LACWWD | No. accounts | 706 | 736 | 752 | 768 | 774 | 972 | 1,200 | 1,300 |
| No. 36 | Deliveries (AF) | 513 | 456 | 500 | 533 | 578 | 758 | 1,071 | 1,302 |
| | No. accounts | 6,039 | 6,230 | 6,373 | 6,475 | 6,726 | 7,434 | 7,941 | 8,970 |
| NCWD | Deliveries (AF) | 7,813 | 7,973 | 7,754 | 8,916 | 8,782 | 9,623 | 9,869 | 10,555 |
| | No. accounts | 13,965 | 14,520 | 15,359 | 17,009 | 19,389 | 21,661 | 24,453 | 27,238 |
| VWC | Deliveries (AF) | 16,572 | 15,338 | 17,390 | 19,721 | 19,874 | 25,190 | 28,360 | 30,682 |
| LACWWD | No. accounts | 818 | 913 | 949 | 979 | 1,010 | 1,097 | 1,155 | 1,312 |
| No. 37 | Deliveries (AF) | 1,355 | 1,369 | 1,655 | 1,880 | 1,718 | 2,423 | 2,773 | 2,613 |
| | **No. accounts** | **39,260** | **40,486** | **41,884** | **43,902** | **47,189** | **52,037** | **58,924** | **63,669** |
| **Total** | **Deliveries (AF)** | **43,401** | **41,318** | **45,555** | **51,176** | **49,553** | **60,851** | **70,507** | **71,730** |

## 2.9.1 Projected Demand

The CLWA 2005 UWMP utilized existing land use data and new housing construction information to project water demands in the CLWA service area. Table 2.9-2 summarizes the projected water demands for the CLWA service area. It is anticipated that these projected demands can be met using the water supplies described above, in both wet and dry years. Because private pumping data is not available, this table includes an estimate of private pumping based on the Census data population and the projected per capita demands in Table 2-9.3.

## 2.9.2 Comparison to City and County Planning

Comparison of the purveyor-projected growth in water demand was made against the growth projections provided by local land use planning agencies. Table 2.9-2 provides the projected water demand estimates for the Region to 2030. Table 2.5-1 (provided earlier) shows growth projections resulting from the joint OVOV planning effort by the City of Santa Clarita and the Los Angeles County Department of Regional Planning.

**TABLE 2.9-2**
**PROJECTED WATER DEMANDS (AF)**

| | Water Demand (AFY) | | | | | |
|---|---|---|---|---|---|---|
| **Purveyor** | **2005** | **2010** | **2015** | **2020** | **2025** | **2030** |
| CLWA SCWD | 30,400 | 35,000 | 39,100 | 43,100 | 47,100 | 51,100 |
| LACWWD No. 36 | 1,3000 | 1,600 | 1,800 | 2,000 | 2,400 | 2,800 |
| NCWD | 11,800 | 14,400 | 16,000 | 17,700 | 19,300 | 21,000 |
| VCW | 30,200 | 35,100 | 40,200 | 43,700 | 50,600 | 54,400 |
| LACWWD No. 37[(a)] | 2,300 | 2,700 | 3,100 | 3,500 | 3,900 | 4,400 |
| SPVMWC[(d)] | 50 | 50 | 50 | 50 | 50 | 50 |
| **Total Purveyors** | **87,750** | **88,850** | **100,250** | **110,050** | **123,350** | **133,750** |
| Acton Private Users[(a)] | 1,500 | 1,900 | 2,300 | 2,700 | 3,100 | 3,500 |
| Agua Dulce Private Users[(a)] | 1,800 | 2,100 | 2,400 | 2,700 | 3,000 | 3,300 |
| Agua Dulce Winery and Vineyard[(a)] | 60 | 60 | 60 | 60 | 60 | 60 |
| Other Private Users[(b)] | 2,300 | 2,300 | 2,300 | 2,300 | 2,400 | 2,400 |
| Other Agricultural Users[(b)] | 9,940 | 7,590 | 5,240 | 2,890 | 440 | 0 |
| **Total (w/out Conservation)** | **103,350** | **102,800** | **112,550** | **120,700** | **132,350** | **143,000** |
| Conservation[(c)] | (8,800) | (8,900) | (10,000) | (11,000) | (12,300) | (13,400) |
| **Total (w/Conservation)** | **94,550** | **106,010** | **102,550** | **109,700** | **120,050** | **129,600** |

Source: CLWA 2005
Notes:
(a) Source: Acton-*Aqua Dulce Conceptual Master Plan for Water Facilities* 2004. Assumes build-out would occur in 2030 with an even growth rate throughout the planning period.
(b) Ag/Private pumping are estimates based on Census data and the CLWA 2005 UWMP.
(c) Conservation assumed to be 10 percent of total purveyor demand.
(d) Estimate from Slade 2004.

The OVOV task force used data provided by the SCAG Regional Transportation Plan, the State Department of Finance, and the Employment Development Department. The annual rate of growth was then examined to determine if the projected water demand was in accordance with the purveyors' projected growth.

In Table 2.5-1, the OVOV projections indicate a 1.6 percent annual growth rate of population and households for the City of Santa Clarita, and 3.7 to 3.8 percent annual growth rate for the Valley Unincorporated Area. This results in a combined growth rate of 2.3 to 2.4 percent, which is comparable to the purveyors' projected annual growth rate in water demand of 2.1 percent shown in Table 2.9-2.

Table 2.9-3 summarizes the projected Valley water use per household in AF and in gallons per capita per day (gpcd). The data developed in this table is derived from the total annual demand projections provided in Table 2.9-2 divided by the projected annual populations and by the projected annual households provided in Table 2.5-1. Since the forecast growth is based on households and population, it is not possible to obtain a direct match to number of service connections and water use per connection. However, based on 2005 population and water demand, the current estimated water use is 264 gpcd. The projected water use of 270 gpcd in 2030 remains very close to the 2005 water use of 264 gpcd, thus demonstrating that water demand and projected growth track closely. The term "household" is a term used by OVOV and does not equate to a single family residence.

**TABLE 2.9-3**
**PROJECTED HOUSEHOLD WATER USE**

| Projected Water Use | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| Water Use (AF/household)[(a)] | 0.97 | 0.95 | 0.95 | 0.93 | 0.95 | 0.94 |
| Water Use (gpcd)[(b)] | 264 | 255 | 258 | 258 | 267 | 270 |

Notes:
(a) Based on dividing the total annual demand projections provided in Table 2.9-1 by the projected annual households provided in Table 2.9-2.
(b) Based on dividing the total annual demand projections (converted from AF to gpd) provided in Table 2.9-1 by the projected annual populations provided in Table 2.5-1.

Table 2.9-4 presents a summary of the comparison between the purveyors and OVOV demand projections. The projected demand by the purveyors varies from -0.20 percent to 5.62 percent of the water demand determined based on the OVOV population projections. This demonstrates that the purveyors' projections track closely with the anticipated growth projected by OVOV.

**TABLE 2.9-4**
**COMPARISON OF PURVEYOR AND OVOV DEMAND PROJECTIONS**

| | Demand (AF) | | | | | |
|---|---|---|---|---|---|---|
| **Projection** | **2005** | **2010** | **2015** | **2020** | **2025** | **2030** |
| Purveyor[(a)] | 73,700 | 86,100 | 97,100 | 106,500 | 119,400 | 129,300 |
| OVOV[(b)] | 75,136 | 90,936 | 101,288 | 111,100 | 120,350 | 129,035 |
| Difference | 1,436 | 4,836 | 4,188 | 4,600 | 950 | (264) |
| Percent Difference | 1.95% | 5.62% | 4.31% | 4.32% | 0.80% | -0.20% |

Source: CLWA 2005.
Notes:
(a) Demand projections based on total purveyor projections provided in Table 2.9-2.
(b) Demand projections based on 269 gpcd multiplied by OVOV population projections provided in Table 2.5-1.

## 2.9.3 Other Factors Affecting Water Demands

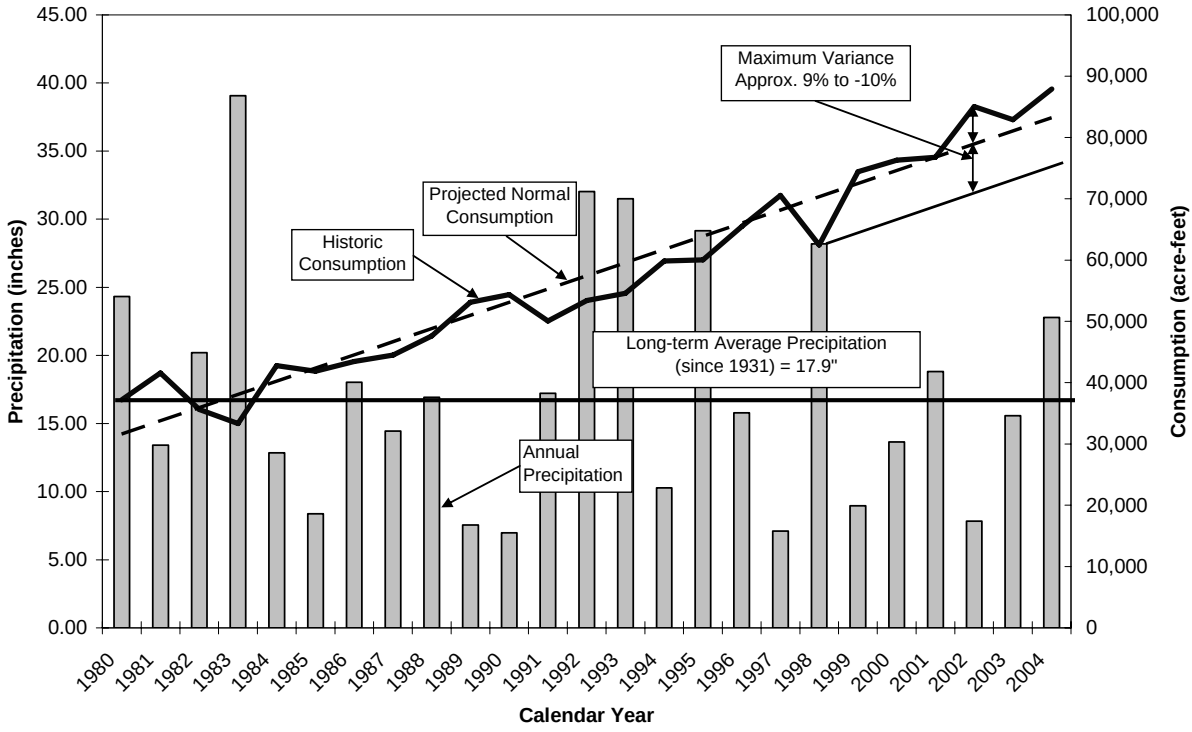
Two major factors that affect water usage are weather and water conservation. Historically, when the weather is hot and dry, water usage increases. The amount of increase varies according to the number of consecutive years of hot, dry weather and the conservation activities imposed. During cool-wet years, historical water usage has decreased to reflect less water

usage for external landscaping. Water conservation measures employed within the CLWA's and purveyors' service areas have a direct long-term effect on water usage. Both of these factors are discussed below in detail.

### 2.9.3.1 Weather Effects on Water Usage

Historically, about 605 to 1,110 gallons of water are consumed daily for urban uses for every household in the CLWA's and purveyors' service areas. Most of this range in water use is due to seasonal weather variations. As presented on Figure 2.9-2, the historical water use from 1980 to 2004 fluctuated principally due to weather, with the maximum variance around the projected normal of approximately nine percent higher use in hot, dry years to approximately 10 percent lower use in cool, wet years.

**FIGURE 2.9-2**
**WEATHER EFFECTS ON WATER USAGE**




### 2.9.3.2 Conservation Effects on Water Usage

In recent years, water conservation has become an increasingly important factor in water supply planning in California. The California plumbing code has instituted requirements for new construction that mandate the installation of ultra low-flow toilets and low-flow showerheads. CLWA and the purveyors have developed water conservation measures that include public information and education programs. CLWA funds a toilet replacement program and, through its connection fee program, has provided financial incentives to developers for good water management practices.

During the 1987 through 1992 drought period, overall water requirements due to the effects of hot, dry weather were projected to increase by approximately 10 percent. As a result of extraordinary conservation measures enacted during the period, the overall water requirements actually decreased by more than 10 percent.

Residential, commercial, and industrial usage can be expected to decrease as a result of the implementation of more aggressive water conservation practices. As previously discussed, the greatest opportunity for conservation is in developing greater efficiency and reduction in landscape irrigation. The irrigation demand can represent as much as 50 percent of the water demand for residential customers depending upon lot size and amount of irrigated turf and plants. It is assumed that conservation will result in a long-term 10 percent reduction of demand from residential, industrial, and commercial uses.

## 2.10 Watershed Flood Management Problems and Issues

The Upper Santa Clara River is a large ephemeral stream that comprises the headwaters for the Santa Clara River system. The morphology of the river changes along its course.

The river originates as a typical mountain stream with a relatively narrow channel incised into hard bedrock that formed the local mountains. It has a straight to meandering channel pattern, and characteristic channel bedforms represented by a sequence of bars, riffles and pools. The bars are accumulations of the bed material positioned successfully downriver on the opposite sides of the channel. The pools are deep zones located directly opposite the bars, and the riffles are the shallow zones between the pools. The coarsest material is deposited in the bars. In alluvial channels, often a coarse-grained lag is left on the riffle, and fine-grained material is deposited in the pool.

As the river exits the confinement of the mountains, it has a typical braided stream geomorphology characterized by the frequently shifting network of channels and the intervening bars, the broad floodplain area, and typical braided stream deposits composed of coarse sediment ranging in size from coarse sand to boulder. In arid and semiarid climates, the morphology of such streams is controlled by stormwater flows originating in highland areas and due to storms of short duration and great intensity in rainfall usually considered as flash floods in this area (UWCD and CLWA 1996). Such braided rivers typically transport large volumes of bedload. It is believed by fluvial geomorphologists that bank erosion is the most necessary factor in creating braided stream systems.

As the Upper Santa Clara River enters the mountains, it narrows down into a single channel, and as it exits, it becomes distinctly braided. The following detailed narrative is modified from the 1996 *Water Resources Report* (UWCD and CLWA 1996). In the area where the river system exits Aliso Canyon and Soledad Pass, the morphology of the river is broad and flat. In Aliso Canyon the width of the 500-year floodplain ranges from 400 to 600 feet and drains to the north. As the river exits Aliso Canyon, it abruptly turns to the west and the floodplain widens to a width of approximately 2,000 feet near Acton. At Acton, the river channel abruptly turns south, and the floodplain narrows down to a width ranging between 600 and 800 feet across as it enters Soledad Canyon near Ravenna. Leaving the canyon just east of State Highway 14 at Soledad, the river traverses across the Santa Clara River Valley East Subbasin. There, it becomes broad and shallow, and displays typical braided stream geomorphological features, such as point bar deposits, gravelly stream bottoms, and broad wide washes that contain an

abundant coarse-size material (sand, gravel, cobble and boulder). The 500-year floodplain formed along this reach of the river contains mostly fine sediment (silt and clay) and varies from about 1,000 to 2,000 feet wide. As the river enters the main Santa Clarita Valley at Bouquet Canyon Road, it is joined by the tributary in San Francisquito Canyon that displays a similar morphology. As the river passes through the west-northwest trending valley, the width of the floodplain abruptly narrows to about 500 feet before reaching Interstate-5. Castaic Creek enters the Santa Clara River from the north at the Castaic Junction area, and the river course continues in the southwestern direction. The width of the floodplain ranges between about 800 feet and 3,000 feet along this reach to the Los Angeles-Ventura County Line (VCWPD and LACDPW 2005). Major drainage infrastructure is shown on Figure 2.10-1.

Major flood events occurred during the winters of 1969 and 1983. Two storm events occurred in January and February 1969 (Los Angeles County Flood Control District 1969). During January 18 through January 26 there was a two-phase storm event. The other storm occurred from February 23 through 25. During the January 18 through 26 storm events, peak flow of 14,800 cubic feet per second (cfs) was recorded at F92-R, Santa Clara River at Old Highway Bridge which was considerably less than February peak flow. During the February storm event, the associated rainfall in the Santa Clara River Valley caused peak flows which exceeded the maximum of record. In the Santa Clara River drainage, at Station F92-R below the Golden State Freeway, the peak flow of 31,800 cfs exceeded all previous peaks of record, including the maximum of 24,000 cfs set in 1938. Problems encountered in the Valley were much greater during the February storm event than the January event, and the damage was caused mostly by degradation rather than debris deposition. In this area, high flows caused severe erosion of watercourses and the destruction of many bridges and improvements along these watercourses. Serious erosion at the south abutment of the Golden State Freeway (Interstate-5) Bridge at the Santa Clara River forced the closure of the freeway.

*Los Angeles County Flood Control District Facility*

During the February storm, damage in the Valley was due mainly to erosion which occurred in the unimproved drainages. Significant among these damages was the destruction of the Africa-USA zoological compound located in the Santa Clara River floodplain near the eastern end of the Valley. The facilities of this private firm were badly damaged and 12 valuable animals that were faced with imminent drowning had to be destroyed. The total damage to Africa-USA was estimated to be $250,000. Considerable damage was caused in the Iron Canyon and Sand Canyon drainages as debris deposition blocked roads, plugged culverts, and damaged bridges. Throughout the rest of the Valley, miscellaneous flooding and erosion caused minor damage, including the destruction of 2,000 feet of waterline which served as the sole source of domestic water for the community of Val Verde.

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PAGE 1

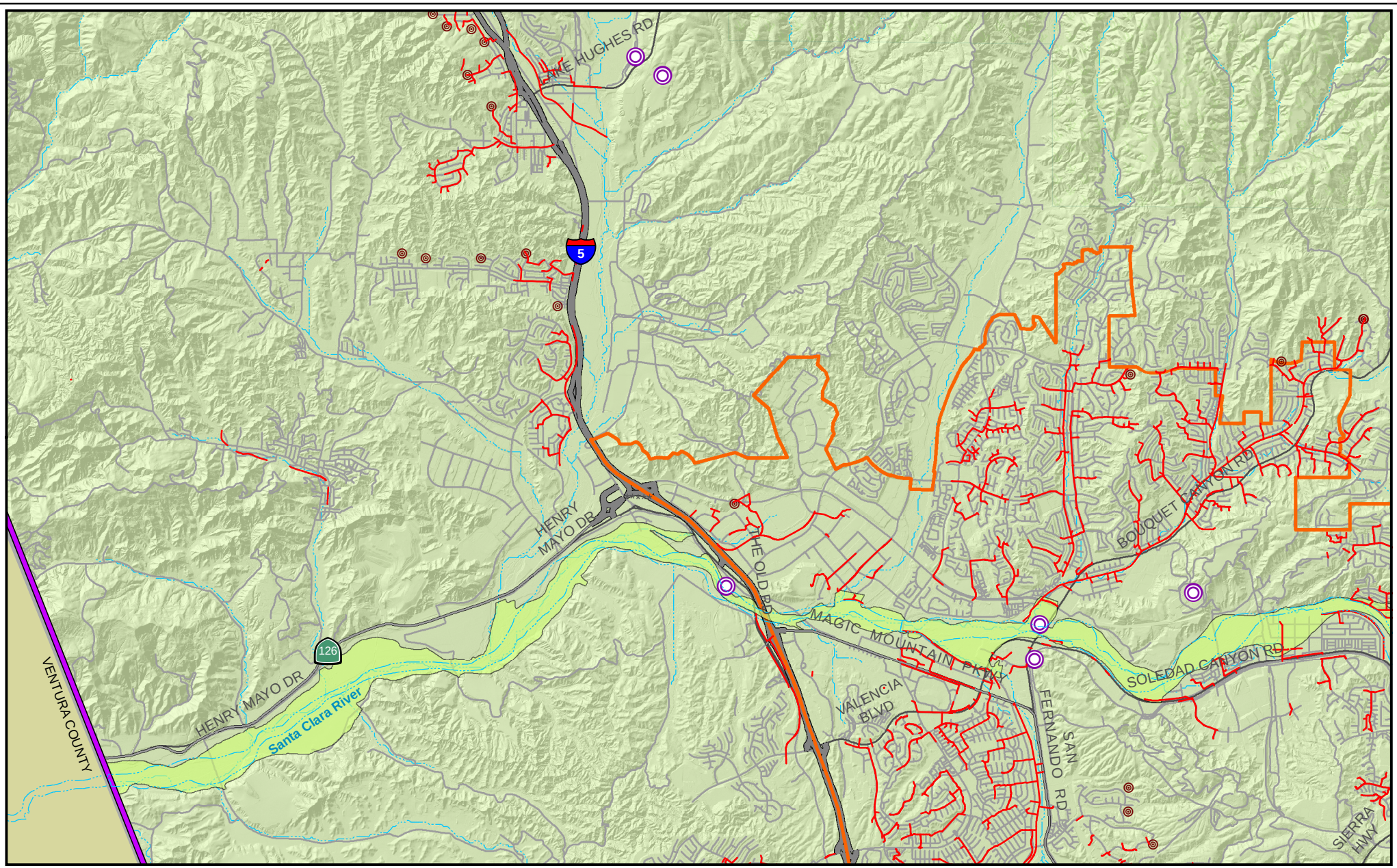





**Figure 2.10-1**
**Drainage and Major Water Related Infrastructure**
**Upper Santa Clara River Watershed**

PAGE 2

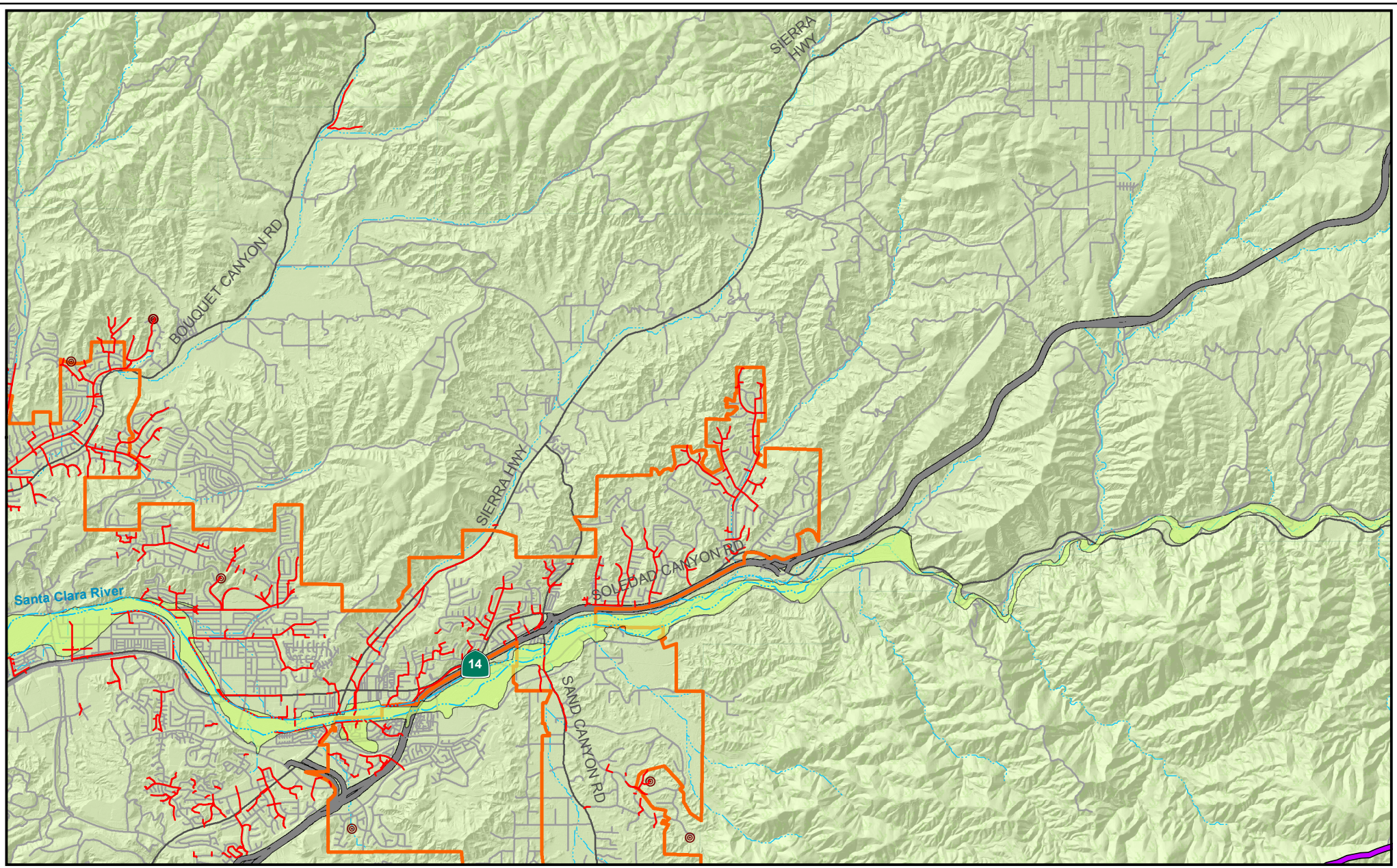





**Figure 2.10-1**
**Drainage and Major Water Related Infrastructure**
**Upper Santa Clara River Watershed**

The storm event of 1983 took place from February 26 to March 6 (Los Angeles County Flood Control District 1983). The County was hit by a series of storms which deluged more than 8 inches of rain on downtown Los Angeles and up to 26 inches in the San Gabriel Mountains. At the time, these events ranked that winter season as the city's fourth wettest in 110 years. While extensive flooding did not occur, several new records for rainfall and runoff were produced. The storm received added attention because of high surf which battered the coast and the $40 million in property damage to the County, along with the loss of six (6) lives. Many lowland and coastal areas were inundated with water, while the mountainous areas of the County experienced landslides and debris runoff. The damages occurred along natural watercourses, in canyons where no flood protection existed, to waterfronts, and to existing flood control facilities. Areas protected by the flood control system received insignificant damage. Damage to facilities along the Santa Clara River included: erosion of a reach of gunite lining in the vicinity of Landgard Road adjacent to the Southern Pacific Railroad tracks at a 90 degree curve which prevented use of the tracks; street and trunk sanitary sewer in Lost Canyon Road were severely damaged by meandering flows upstream of Sand Canyon Road; south approach to the Sand Canyon Road Bridge above the Santa Clara River was completely washed out, and flows destroyed underground and overhead utilities; the south approach to the Sierra Highway Bridge and some utilities were damaged; a carport and the utilities in a trailer park located on the north side of the river west of Sierra Highway were destroyed, and the parking area behind the pipe and wire revetment washed out; Soledad Canyon Road and Southern California Edison Company's main power lines (upstream of Bouquet Canyon Road) were damaged; the large structural steel power transmission tower west of the Golden State Freeway on Magic Mountain Parkway was toppled over by flows; the east approach to the Magic Mountain Parkway Bridge west of San Fernando Road was completely washed out; and a portion of the Bouquet Canyon concrete channel wall in the vicinity of Alamogordo Road and Bouquet Canyon Road was washed away, requiring emergency restoration work.

Figure 2.10-2 provides a summary of total runoff for the Santa Clara River at Old Road Bridge.

## 2.11 Major Water Related Infrastructure

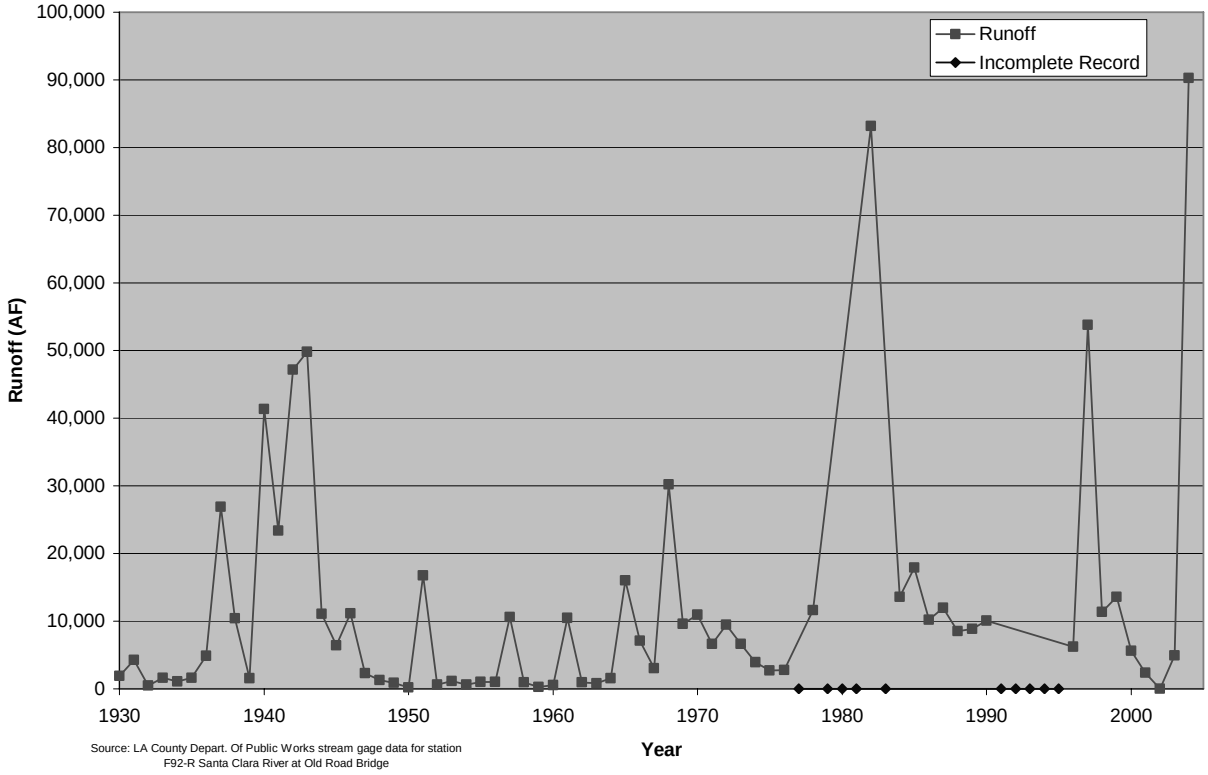
The following includes a discussion of the major water related infrastructure in the Region, shown in Figure 2.10-1.

### 2.11.1 State Water Project

The SWP is the largest state-built, multi-purpose water project in the country. It was authorized by the California State Legislature in 1959, with the construction of most initial facilities completed by 1973. Today, the SWP includes 28 dams and reservoirs, 26 pumping and generating plants, and approximately 660 miles of aqueducts. The primary water source for the SWP is the Feather River, a tributary of the Sacramento River. Storage released from Oroville Dam on the Feather River flows down natural river channels to the Sacramento-San Joaquin River Delta (Delta). While some SWP supplies are pumped from the northern Delta into the North Bay Aqueduct, the vast majority of SWP supplies are pumped from the southern Delta into the 444-mile-long California Aqueduct. The California Aqueduct conveys water along the west side of the San Joaquin Valley to Edmonston Pumping Plant, where water is pumped over the Tehachapi Mountains and the aqueduct then divides into the East and West branches. CLWA takes delivery of its SWP water at Castaic Lake, a terminal reservoir of the West Branch.

From Castaic Lake, CLWA delivers its SWP supplies to the local retail water purveyors through an extensive transmission pipeline system.

**FIGURE 2.10-2**
**HISTORICAL RUNOFF FOR THE SANTA CLARA RIVER**




## 2.11.2 Bouquet Reservoir and Los Angeles Aqueduct

Bouquet Reservoir is a reservoir about 15 miles west of Palmdale in the County. It is at an elevation of 2,993 feet in the Sierra Madre Mountains. The reservoir has a capacity of 36,500 AF and is formed by the Bouquet Canyon Dam on Bouquet Creek, which is a tributary of the Santa Clara River. The dam was built by the City of Los Angeles in 1934. The reservoir is apart of the Los Angeles Aqueduct system, which is what supplies most of its water. The Los Angeles Aqueduct system moves water from the Mono Basin and Owens Valley to the City of Los Angeles.

## 2.11.3 Metropolitan Water District Foothill Feeder

The Metropolitan Foothill Feeder is a pipeline that conveys SWP raw water from Castaic Lake to its terminus at the Joseph Jensen Filtration Plant in Granada Hills, located near the intersection of Balboa Boulevard and Interstate 5. The plant and feeder began operation in 1972. The feeder is capable of conveying up to 1,800 cfs of water, while the plant can treat up to 750 mgd. At the filtration plant, the Foothill Feeder control structure contains two hydroelectric power plants at 4.5 megawatts each. As the structure controls the water flow into the plant, the energy

is harnessed and electricity is generated. Along the feeder, there are several blow-off structures that can release water into the Santa Clara River, Placerita Creek, San Francisquito Canyon, Charlie Canyon, and Castaic Lagoon.

### 2.11.4 Purveyor Water Infrastructure

CLWA owns and operates water conveyance pipelines and water treatment facilities to supply water delivered through the SWP to the four retail purveyors within its boundaries. DWR transports water via the California Aqueduct to Castaic Lake and releases water to the Agency through the outlet tower at Castaic Lake. The reservoir is a multiple use reservoir that is the terminal point of the west branch of the California Aqueduct, and it stores approximately 320,000 AF of water. The Agency's major facilities consist of the Earl Schmidt Intake Pump Station (ESIPS), the 56 mgd Earl Schmidt Filtration Plant (ESFP), the Rio Vista Intake Pump Station (RVIPS), the 30 mgd Rio Vista Water Treatment Plant (RVWTP), and a system of pipelines and ancillary facilities which convey treated water to the four (4) retail purveyors.

CLWA treats the imported water stored in Castaic Lake at either the ESFP or the RVWTP and delivers it to the water purveyors through a transmission system. The main transmission line, the Castaic Conduit, is located east of the Golden State Freeway, generally paralleling the Freeway and Magic Mountain Parkway from Castaic Lake to a point just north and west of Bouquet Junction where two (2) laterals begin. The Honby Lateral roughly follows the north side of the Santa Clara River to the east, where it crosses to the south to serve Saugus. Headed in a southerly direction, the Newhall Lateral parallels San Fernando Road to serve Newhall and Valencia. At the present time, CLWA delivers water to the purveyors through 11 turnouts, including those to SCWD.

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# Section 3: Plan Objectives

The purpose of this section is to identify objectives for the IRWMP, or broadly what the Stakeholders and the RWMG have determined they would like the IRWMP to accomplish when implemented. The following pages include an overview of the IRWMP objectives and describe how objectives were developed utilizing the Stakeholder process. To the extent feasible, objectives have been quantified. Quantifying objectives is intended to provide a means by which the future success of IRWMP implementation can be measured.

## 3.1 Objective Development

Four Stakeholder meetings focused on the development of objectives for the Upper Santa Clara River IRWMP Region. After the topic and concept of "objectives" was introduced to the group, various goals and objectives from neighboring IRWMPs were presented and reviewed, and the Stakeholders held a brainstorming session on issues, goals, and objectives that would be appropriate for the Region. Once a draft list of objectives was prepared and presented to the Stakeholders at a subsequent Stakeholder meeting, the wording and definition of the draft list of objectives was discussed and refined. In developing objectives, Stakeholders determined that it was important that they be measurable, in order to gauge successful implementation of the IRWMP. Stakeholders also brainstormed many potential means of quantifying objectives. From this session a first draft of quantified objectives was developed for Stakeholder review, and this was refined during subsequent meetings.

The resulting objectives generally apply to the Region as a whole and are meant to focus attention on the primary needs of the Region. Table 3.1-1 presents the objectives for the Region, the definition of each objective, and proposed means for measuring progress toward achieving each objective as the IRWMP is implemented.

**OBJECTIVES OF UPPER SANTA CLARA RIVER IRWMP**

***Reduce Water Demand***: Implement technological, legislative and behavioral changes that will reduce user demands for water.

***Improve Operational Efficiency:*** Maximize water system operational flexibility and efficiency, including energy efficiency.

***Increase Water Supply:*** Understand future regional demands and obtain necessary water supply sources.

***Improve Water Quality***: Supply drinking water with appropriate quality; improve groundwater quality; and attain water quality standards.

***Promote Resource Stewardship:*** Preserve and improve ecosystem health; improve flood management; and preserve and enhance water-dependent recreation.

In developing these objectives, Stakeholders determined that it was important that they not only be measurable, but also that the existing condition of the resources at issue be quantified so that change/progress could be reasonably ascertained at a later date. Stakeholders evaluated a variety of reports and studies to determine existing conditions. These reports also contained valuable insight about how change or progress towards a given objective could be measured. References used to develop measurable objectives included:

- Antelope Valley-East Kern Water Agency (AVEK). 2005*. 2005 Urban Water Management Plan*

- CLWA. 2005. *2005 Urban Water Management Plan.*

- CLWA. 2007. *Recycled Water Master Plan Final Environmental Impact Report.*

- CLWA. *Fiscal Year 2006/2007 Strategic Plan.*

- City of Santa Clarita and County of Los Angeles. 2004*. Santa Clarita Valley General Plan ("One Valley, One Vision") Technical Background Report.*

- City of Santa Clarita. 1991. *Parks and Recreation Element, General Plan.*

- LACWWD No. 37. 2004. *Acton-Agua Dulce Conceptual Water Master Plan for Water Facilities.*

- Los Angeles RWQCB. 2006. *Amendment to the Water Quality Control Plan for the Los Angeles Region through Revision of the Implementation Plan for the Upper Santa Clara River Chloride TMDL Resolution 04-004. Resolution Number R4-2006-016*. August.

- Los Angeles RWQCB. 2003. *Amendment to the Water Quality Control Plan for the Los Angeles Region to include a TMDL for Nitrogen Compounds in the Santa Clara River. Resolution Number 03-011*. August.

- Penrod, K., C. Cabañero, P. Beier, C. Luke, W. Spencer, and E. Rubin. 2004. *South Coast Missing Linkages Project: A Linkage Design for the San Gabriel-Castaic Connection*. South Coast Wildlands, Idyllwild, CA. www.scwildlands.org

- Ventura County Resource Conservation District. 2006. *Upper Santa Clara River Watershed Arundo and Tamarisk Removal Program. Long-Term Implementation Plan.*

- Ventura County Watershed Protection District (VCWPD) and LACDPW. 2005. *Santa Clara River Enhancement and Management Plan.*

- US Forest Service. 2003. *Business Plan for the Angeles National Forest*. November. R5-MB-020.

**TABLE 3.1-1**
**UPPER SANTA CLARA RIVER IRWMP OBJECTIVES, DEFINITIONS AND MEASUREMENTS**

| Objective | Measurement |
|---|---|
| ***Reduce Water Demand***: Implement technological, legislative and behavioral changes that will reduce user demands for water. | Ten (10) percent overall reduction in projected urban water demand throughout the Region by 2030 through implementation of water conservation measures.<br>Replace up to 4,300 outdated water meters per year. |
| ***Improve Operational Efficiency***: Maximize water system operational flexibility and efficiency, including energy efficiency. | With assistance of local energy utility, perform electrical audit on all wholesale and purveyor water facilities once every five years.<br>Reduce, on an agency-by-agency basis, energy use per acre-foot treated and delivered. |
| ***Increase Water Supply***: Understand future regional demands and obtain necessary water supply sources. | Increase use of recycled water by up to 17,400 AFY by 2030, consistent with health and environmental requirements.<br>Implement long-term transfer and exchange agreements for imported water with other water agencies, up to 4,000 AFY by year 2010 and 11,000 AFY by year 2030.<br>Increase water supply as necessary to meet anticipated peak demands at buildout in the LACWWD No. 37 service area (~0.74 mgd) and peak demands at buildout in the Acton and Agua Dulce areas (up to 12.16 mgd).<br>Capture and recharge 5,000 to 10,000 AFY of urban and storm water runoff in a manner consistent with the pending update to the regional groundwater flow model and Basin Yield Study.. |
| ***Improve Water Quality***: Supply drinking water with appropriate quality; improve groundwater quality; and attain water quality standards. | Meet all drinking water standards.<br>Prevent migration of contaminant plumes.<br>Comply with existing and future TMDLs. |
| ***Promote Resource Stewardship***: Preserve and improve ecosystem health; improve flood management; and preserve and enhance water-dependent recreation. | In areas of the floodplain where invasive species have taken hold, reduce invasive species to 40 percent or less cover of the understory and canopy in years 1 to 5. Every five (5) years reduce by half the percentage of invasive species. In years 20 and beyond, keep invasive species to 2 percent or less. Keep invasive species to 2 percent or less in the upper reaches and tributaries where little to no invasive plants are currently located.<br>Acquire acreage or conservation easements for 10,900 acres of remaining proposed South Coast Missing Linkage.<br>Purchase private property from willing sellers in the 100-year floodplain.<br>Acquire 12 miles along the Santa Clara River for development as a recreational trail/park corridor. |

## 3.2 Regional Objectives

The following paragraphs provide additional detail about the regional objectives developed by the Stakeholders and the various means of measuring whether or not the objectives are being achieved.

### 3.2.1 Reduce Water Demand

Water conservation provides a viable long-term means to reduce demand and enhance supply. It also saves considerable capital and operating costs, particularly energy costs, for both utilities and their rate payers, and can avoid environmental degradation associated with developing new supplies.

Both wholesale (CLWA and AVEK) and retail water agencies are pursuing conservation in the Region. CLWA has programs related to reducing water demand. CLWA performs system water audits (to find and correct leaks in its system), conducts public and school education programs within its service area on the need for conservation, and provides financial incentives to its purveyors to advance water conservation. The rate structure CLWA utilizes also encourages conservation by charging more when greater volumes of water are used. Retail agencies (NCWD, SCWD, VWC, and LACWWD No. 36), in coordination with CLWA have also implemented demand reduction measures, including plumbing retrofit programs, and have undertaken pilot studies on the best ways to implement conservation practices for large landscape areas and commercial, industrial, and institutional customers. In addition, NCWD and VWC have individual programs offered to customers such as free water audits to residential and commercial water users and inviting customers to participate in a pilot program to test the effectiveness of automated irrigation controller systems.

In addition, the retail agencies and CLWA have undertaken the production of a *Water Conservation Strategic Plan* for their service areas in the Valley, which will provide recommendations for a variety of water conservation measures that can be incorporated into future versions of the IRWMP through time.

AVEK, according to its 2005 UWMP, maintains an active public information program for conservation purposes. In addition, AVEK audits system losses on a regular basis and makes repairs to minimize water loss. Its service area, however, covers a relatively small portion of the Region (the far eastern edge).

Given past demand reduction success and the potential to introduce additional demand reduction measures (such as large landscape conservation), the Stakeholders have identified the following measurable objectives:

- *Ten (10) percent overall reduction in projected urban water demand throughout the Region by 2030 through implementation of water conservation measures*

- *Because outdated meters can underestimate water usage, replace up to 4,300 outdated water meters per year*

A 10 percent overall reduction in projected urban water demand by year 2030 was considered within CLWA's 2005 UWMP. Many of the water agencies in the Region also have meter testing,

repair, and replacement programs. Most of the purveyors in the Region strive to test and replace as necessary, any meters approximately 15 to 20 years of age or older. Testing is more frequent for larger meters.

### 3.2.2 Improve Operational Efficiency

Improved operational efficiency would result in decreasing the amount of energy, labor, and other materials (e.g., water treatment chemical supplies) needed to move water from its source to the customer. For example, through proper sizing and placement of storage tanks it may be possible to fill and drain tanks during off-peak hours for electricity or use gravity-feed to fill tanks. Another example of operational efficiency is using the river channel itself as a groundwater recharge area, rather than purchasing land to create and operate recharge facilities or injection wells. An example of operational *inefficiency* is using resources to treat water to the drinking water standard if in fact that water is going to be used for non-potable uses (for example, landscape irrigation and industrial processes). In this example, there could be greater operational efficiency if the recycled water distribution system were expanded to serve the non-potable uses currently receiving treated water.

Related to operational efficiency, the Stakeholders have identified the following measurable objectives:

- *With assistance of local energy utility, perform electrical audits on all wholesale and purveyor water facilities once every five years*
- *Reduce, on an agency-by-agency basis, energy cost per acre-foot of treated water delivered*

### 3.2.3 Increase Water Supply

A reliable water supply is necessary to protect the economic vigor of the Region. As discussed in Section 2 and the CLWA UWMP, the CLWA service area portion of the Region's anticipated demand in a normal year is projected to be about 130,000 AF in 2030 (with conservation), but this could increase in a multi-year dry situation to an estimated 138,000 AF in 2030. Concurrently in a multi-year drought scenario, supplies will decline. For this reason the water agencies in the CLWA service area have planned for other sources to increase their water supply and their water supply reliability, including programs to restore groundwater production, to utilize recycled water, and to bank groundwater.

On a sub-regional scale there is a projected imbalance between supply and demand. Peak demands during the summer need to be accounted for in order to size water supply, treatment, and transmission facilities, which run approximately two times the average daily demands. Existing demand for water in the LACWWD No. 37 service area is 2,252 AFY with peak demand at 4.02 mgd. Existing water supply sources for LACWWD No. 37 include three wells and the imported water from the AVEK water treatment plant (WTP) with a combined capability of delivering about 7.17 mgd. At buildout, the projected demand in the LACWWD No. 37 area is 4,431 AFY with peak demand at 7.91 mgd which exceeds peak supply by 0.74 mgd. Options available to meet the additional demand include expansion of the AVEK WTP, drilling additional wells, water conservation (reducing projected water demands) and water reclamation, or a combination of all four (4) options.

The Acton and Agua Dulce areas (outside of the LACWWD No. 37 service area) obtain water from local wells and in some cases hauled water. The 2004 LACWWD study of 3,707 parcels in the Acton and Agua Dulce area, adjacent to the LACWWD No. 37 service area, estimated the existing demand to be approximately 3,283 AFY with a peak demand of 5.86 mgd. At buildout estimated water demand for Acton and Agua Dulce areas (excluding LACWWD No. 37) will increase to 6,813 AFY and peak demand to 12.16 mgd. It is uncertain whether local wells will be sufficient to meet future demand. County policy requires that property owners demonstrate proof of reliable potable supply before proceeding with new development.

Related to water supply the Stakeholders have identified the following measurable objectives:

- *Increase use of recycled water by up to 17,400 AFY in year 2030; consistent with health and environmental requirements*
- *Implement long-term transfer and exchange agreements for imported water with other water agencies, up to 4,000 AFY by year 2010 and 11,000 AFY by year 2030*
- *Capture and recharge 5,000 to 10,000 AFY of urban and storm water runoff in a manner consistent with the pending update to the regional groundwater flow model and Basin Yield Study*
- *Increase water supply as necessary to meet anticipated peak demands at buildout in the LACWWD No. 37 service area (~0.74 mgd) and peak demands at buildout in the Acton and Agua Dulce areas (up to 12.16 mgd)*

Use and delivery of up to 17,400 AFY of reclaimed water was considered in CLWA's *Recycled Water Master Plan Final Program Environmental Impact Report*. In addition, this same amount of recycled water was considered in CLWA's 2005 UWMP. CLWA's 2005 UWMP also contemplated long-term water transfers as a means for enhancing future water supply.

### 3.2.4 Improve Water Quality

Water quality is an important consideration not only for water delivered to the customer, but for ecosystems.

The majority of drinking water served in the Region is treated at either the ESFP or the RVWTP, both operated by CLWA. These plants use ozone, chemicals, and filtration to treat water. Chloramines and/or chlorine may also be added to the water following treatment to prevent the growth of bacteria in the distribution systems. In the LACWWD No. 37 service area, water is treated at the AVEK WTP. Currently, these facilities provide water that consistently meets drinking water standards.

Outside of the CLWA or LACWWD No. 37 service areas, many water users in the Region rely on privately operated wells for their water supply. In the Acton Valley Groundwater Basin, assessments by DWR and others have indicated that levels of TDS, sulfate, chloride, and boron can exceed drinking water standards. Though data is somewhat limited, there are also indications that nitrates can exceed drinking water standards in the Agua Dulce Groundwater Basin as well (NPRI 0-191-254). Therefore, related to water quality, the Stakeholders have identified the following measurable objective:

- *Meet drinking water standards*

The detection of perchlorate in Valley groundwater supplies has raised concerns over the reliability of those supplies and has pointed to the need to monitor for, and mitigate, any contaminant plumes. In cooperation with state regulatory agencies, CLWA and the local retail water purveyors have developed a plan to pump and treat perchlorate in a manner to limit contaminant plume migration. Based on the experience with perchlorate the Stakeholders have identified the following measurable objective:

- *Prevent migration of contaminant plumes*

Hard water (water high in calcium or magnesium or both) is a recognized problem in the Region. Due to water hardness, a high percentage of homeowners and businesses in the Region have installed water softeners. However, water softening has had a negative effect on the Upper Santa Clara River because the softeners (particularly self-regenerating softeners) add chlorides to the water which eventually pollute the river and have been implicated in downstream crop damage. Certain crops, such as strawberry and avocado trees, are "salt-sensitive" and increased levels of chloride in the water may interfere with their growth.

The majority of the Upper Santa Clara River has also been identified as having high nitrite, nitrate, and ammonia levels. High levels of these substances can be toxic to aquatic life and can cause algae growth. Identified sources for nitrate-related discharges are reclamation plant discharges, agricultural runoff, storm water discharges, and groundwater discharges.

*TMDLs are Intended to Protect Beneficial Uses, Including Habitat*

As described in Section 2, several TMDLs have been established for the Upper Santa Clara River. These TMDLs are established in order to protect beneficial uses of the river, including agricultural irrigation, warm freshwater habitat, and groundwater recharge. TMDLs have been adopted for both nitrogen compounds and chlorides. However, there are other constituents of concern in the Region that may result in additional future TMDLs. For example, lakes in the Region are listed as having eutrophic conditions and having issues related to trash, organic enrichment, and pH. Upper reaches of the Santa Clara River are listed as having impairment related to insecticide residues and coliform bacteria. Therefore, related to water quality the Stakeholders have identified the following measurable objective:

- *Comply with existing and future TMDLs.*

### 3.2.5 Practice Resource Stewardship

Water is intended for many beneficial uses including agricultural water supplies, groundwater recharge, water replenishment, recreation, wildlife habitat, rare and endangered species, and wetland ecosystems.

To this end, Stakeholders have investigated multiple objectives related to resource stewardship, including removal of invasive species, acquisition of floodplain areas for recreation and flood easements, and acquisition of habitat.

*Non-native and Invasive Arundo*

Invasive plants in the watershed, such as arundo (*Arundo donax*) and tamarisk (*Tamarix spp.*) negatively affect water quality, crowd out native plants and species, and increase flood risk, erosion hazard, and wildfire risk. Non-native plants are also heavy water users; arundo uses almost twice as much water as native riparian vegetation (Ventura County Resources Conservation District 2006). Both arundo and tamarisk are highly flammable, and due to plant height (up to 30 feet), a fire in arundo or tamarisk can easily spread to nearby tree canopies. Large stands of arundo or tamarisk can obstruct stream flows and shunt flow outward, exacerbating bank erosion. Stakeholders have identified the following measurable objective related to resource stewardship:

- *In areas where invasive plants have taken hold, establish areas of the floodplain where invasive species comprise 40 percent or less cover of the understory and canopy in years 1 to 5; decrease percentage of invasive species by half every five (5) years (20 percent: years 6 to 10, 10 percent: years 10 to 15, 5 percent: years 15 to 20). In years 20 and beyond, a less than 2 percent goal has been established. Keep invasive species to 2 percent or less in the upper reaches and tributaries where little to no invasive plants are currently located*.

This overall measurement is to remove non-native plant species and promote revegetation by native plant species in the Upper Santa Clara River and protect its 500-year floodplain. In addition, this measurement is intended to prevent establishment of new species of invasive plants within the Watershed, as it is the most cost effective way to control these plants and prevents further habitat degradation. A phased goal has been established over a 20-year period due to the persistence of these species, the expense of removal, the short annual removal period, and the changing nature of the Watershed. Specifically, the overall goal is to keep invasive species to 2 percent or less in the upper reaches and tributaries where little to no invasive plants are currently located. In areas where invasive plants have taken hold, the goal is to establish areas of the floodplain where invasive species comprise 40 percent or less cover of the understory and canopy in years 1 to 5. The goal will be halved every five (5) years (20 percent: years 6 to 10, 10 percent: years 10 to 15, 5 percent: years 15 to 20). In years 20 and beyond, a less than 2 percent goal has been established.

Recreation and flood control are both important activities on Pyramid, Castaic, and Elizabeth Lakes, as well as the Upper Santa Clara River and, in many cases, these can be competing interests. However, the purchase of public easements along the Upper Santa Clara River is one method to create land uses that would accommodate both the protection of flood inundation

areas and recreational facilities. Stakeholders have identified the following measurable objective related to resource stewardship:

- *Acquire 12 miles along the north side of the Santa Clara River to the eastern City Limit (within River Reach 6) for development as a recreational trail/park corridor*

As described in Section 2, within the Region, the South Coast Missing Linkages (SCML) Project is a partnership involving representatives from the US Forest Service, The Wildlands Conservancy, The Nature Conservancy, California State Parks, the National Park Service, Zoological Society of San Diego Applied Conservation, Conservation Biology Institute, the California State Parks Foundation, the Santa Monica Mountains Conservancy, South Coast Wildlands, and many others. This project has focused on defining and preserving ecological linkages throughout Southern California and Baja California, an area collectively termed the South Coast Ecoregion. The principle goal of the SCML-proposed San Gabriel-Castaic Connection, primarily located in the Upper Santa Clara River Region, is to preserve essential open space and viable connections for wildlife movement between two core habitat areas, the San Gabriel Mountains and the Castaic Ranges (including the Sierra Pelona), both part of the Angeles National Forest managed by the US Forest Service. A feature of the proposed linkage is the Santa Clara River as it acts as a natural linkage. The SCML has identified approximately 10,900 acres in Soledad Canyon (between Acton and the mouth of Agua Dulce Canyon), Hauser, Long, Bobcat, Escondido, Upper Mint, and Tick canyons for preservation. For this reason, the Stakeholders have identified the following measurable objective related to resource stewardship:

- *Acquire acreage or conservation easements for 10,900 acres of remaining proposed South Coast Missing Linkage*

Finally, Stakeholders of this IRWMP process have identified encroachment of private property into the floodplain as an issue. There are approximately 4,900 acres in the 100-year floodplain of the Upper Santa Clara River. This has also been raised as an issue and concern as part of past studies, most notably the *Santa Clara River Enhancement and Management Plan* (VCWPD and LACDPW 2005). Stakeholders have identified the following measurable objective related to resource stewardship:

- *Purchase of private property from willing sellers in the 100-year floodplain*

## 3.3 Strategies

Following identification of objectives, the Stakeholders then moved to refining strategies appropriate to achieving the objectives. This process and its outcomes are described in Section 4.

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# Section 4: Water Management Strategies Used to Meet Plan Objectives

## 4.1 Overview

Section 3 of this IRWMP introduced the water management objectives for the Region, as identified by the Stakeholders of the Upper Santa Clara River IRWMP. This section of the IRWMP is intended to introduce the reader to water management strategies, or general means by which the broad objectives listed in Section 3 will be realized. Eventually, individual projects will be identified in Section 5, which are the specific means proposed by the Stakeholders for implementing the water management strategies identified in this section. Figure 4.1-1 graphically demonstrates the relationship between objectives, strategies, and projects.

This section introduces a diverse menu of water management strategies available to meet the water management objectives within the Region. The State of California has identified 24 different water management strategies that can be used to improve water resource management. Section 4.2 defines and discusses each of the 24 water management strategies of the *California Water Plan*, in order to provide the reader with an understanding of the State's vision for possible ways to meet future water management challenges. This section also serves to provide background in common water management tools available. In this report, we have organized the 24 different management strategies into five areas based on the objectives defined by the Stakeholders (reduce water demand, improve operational efficiency, increase water supply, improve water quality, and promote resource stewardship).

Section 4.3 demonstrates how the Stakeholders have built upon the water management strategies in the *California Water Plan* and water management strategies already implemented in the area and have tailored these strategies to meet the water management objectives of the Region. Finally, Section 4.4 describes the "Call for Projects" process and gives an overview of projects submitted for inclusion in the IRWMP which will implement these strategies to meet the regional objectives.

## 4.2 California Water Plan Water Management Strategies

This section describes the *California Water Plan* and each of the 24 water management strategies (referred to in the *California Water Plan* as "resource" management strategies; please see Figure 4.1-2). The *California Water Plan*, which is updated every five years as required by the California Water Code, is a resource for water planners, managers and policy-makers faced with the task of acting as stewards of this resource. More concisely, it is a strategic plan for all regions of the State that addresses the uncertainty of future water needs by recommending a diversified approach, consisting of multiple strategies and a range of short- and long-term actions. Given the many water challenges the State must actively respond to, the *California Water Plan* deems it imperative that planning take place on a regional scale and that planning constitute an inclusive process involving multiple players, particularly local agencies and governments and their citizens.

**FIGURE 4.1-1**
**RELATIONSHIP BETWEEN OBJECTIVES, STRATEGIES, AND PROJECTS**

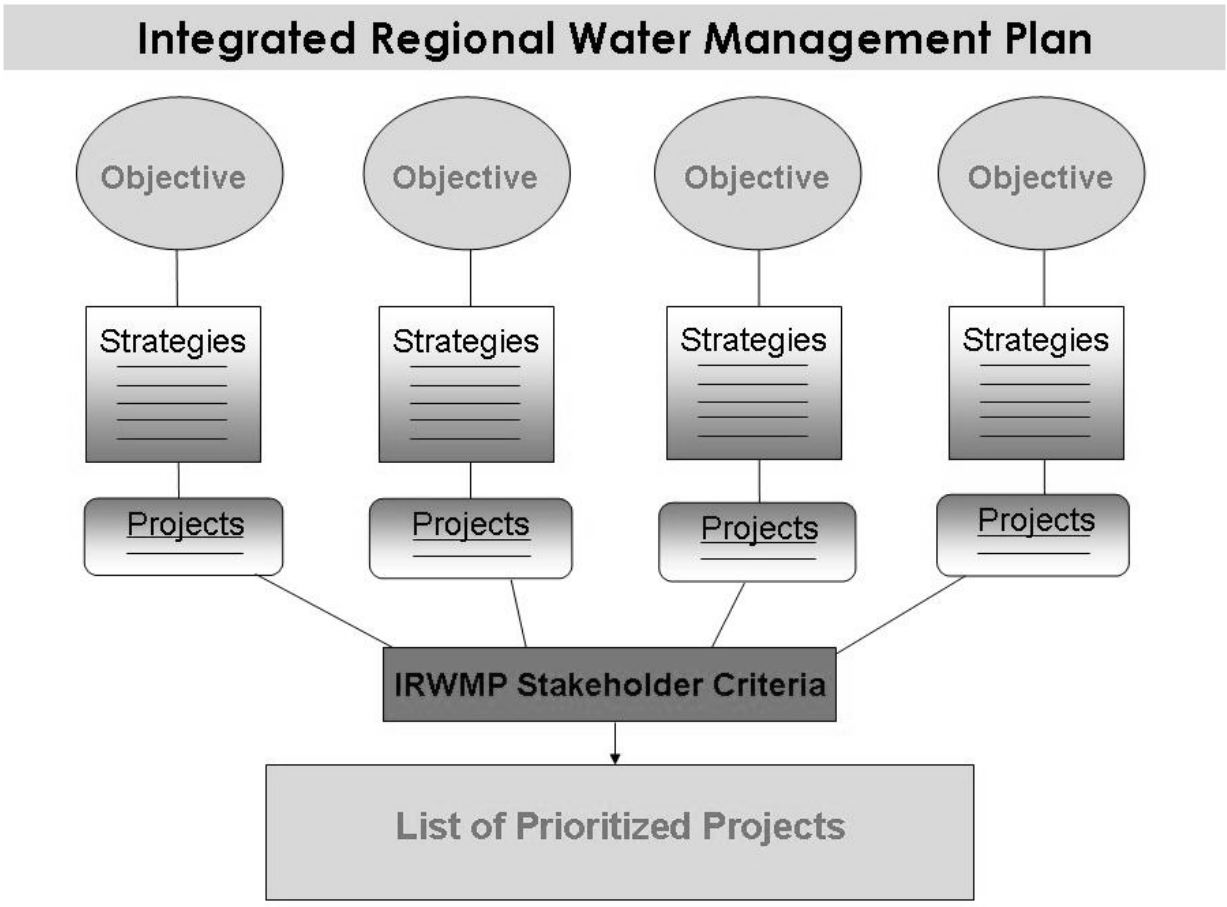
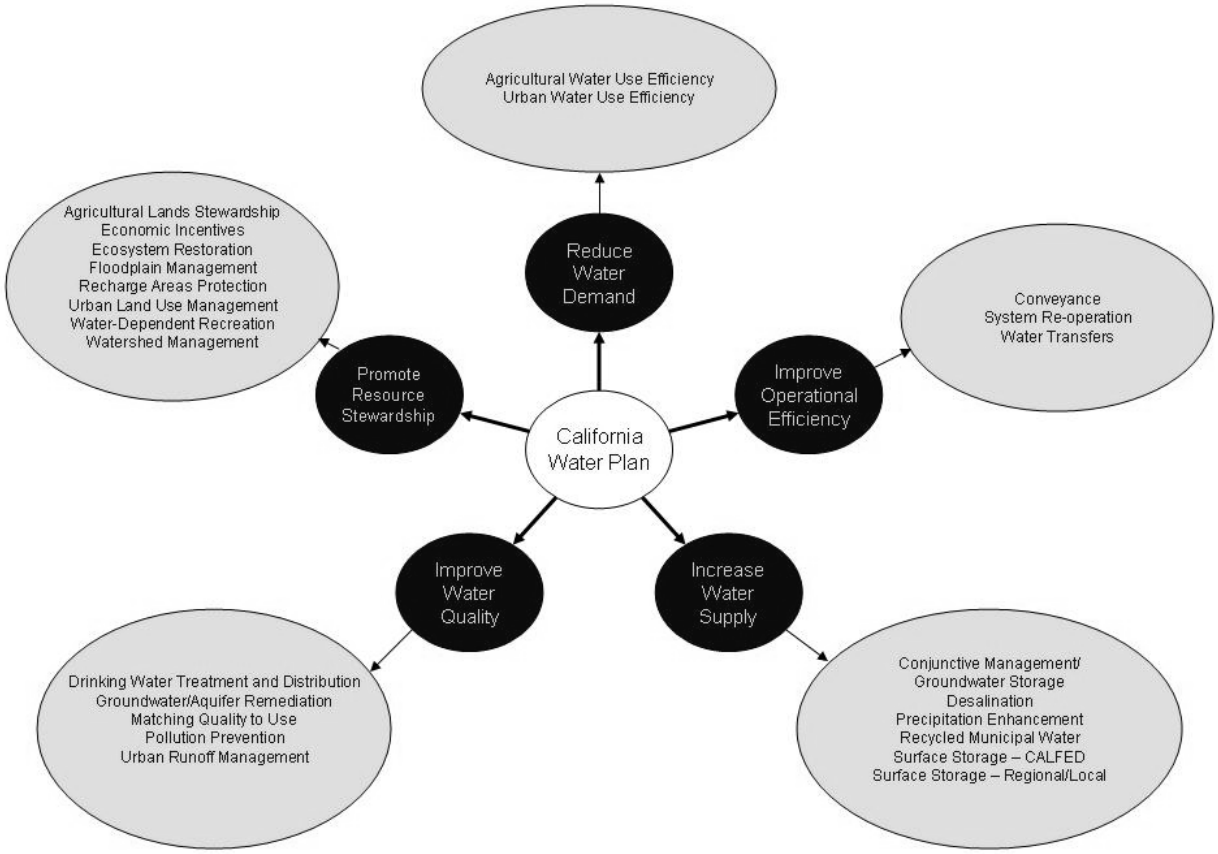


**FIGURE 4.1-2**
**TWENTY FOUR WATER MANAGEMENT STRATEGIES OF THE CALIFORNIA WATER PLAN**



The following water management strategies are projects, programs or policies that can be used to manage water and related resources in such a way that will expand local water portfolios and encourage efficient water allocation and use. The following descriptions are taken from the *California Water Plan.*

## 4.2.1 Reduce Water Demand

### 4.2.1.1 Agricultural Water Use Efficiency

Agricultural water use efficiency involves improvements in technologies and management of agricultural water that result in water supply, water quality, and environmental benefits. Efficiency improvements can include on-farm irrigation equipment, crop and farm water management, and water supplier distribution systems.

### 4.2.1.2 Urban Water Use Efficiency

Urban water use efficiency involves technological or behavioral improvements in indoor and outdoor residential, commercial, industrial, and institutional water use that lower demand, lower per capita water use, and result in benefits to water supply, water quality, and the environment.

## 4.2.2 Improve Operational Efficiency

### 4.2.2.1 Conveyance

Conveyance provides for the movement of water. Specific objectives of natural and managed water conveyance activities include flood management, consumptive and non-consumptive environmental uses, water quality improvement, recreation, operational flexibility, and urban and agricultural water deliveries. Infrastructure includes natural watercourses as well as constructed facilities like canals, pipelines and related structures including pumping plants, diversion structures, distribution systems, and fish screens. Groundwater aquifers are also used to convey water.

*Installation of a conveyance pipeline in the City of Santa Clarita by Castaic Lake Water Agency*

### 4.2.2.2 System Re-operation

System re-operation means changing existing operation and management procedures for such water facilities as dams and canals to meet multiple beneficial uses. System re-operation may improve the efficiency of existing uses, or it may increase the emphasis of one use over another. In some cases, physical modifications to the facilities may be needed to expand the re-operation capability.

### 4.2.2.3 Water Transfers

A water transfer is defined in the California Water Code as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer or exchange of water or water rights. A more general definition is that water transfers are a voluntary change in the way

water is usually distributed among water users in response to water scarcity. Transfers can be from one party with extra water in one year to another who is water-short that year.

### 4.2.3 Increase Water Supply

#### 4.2.3.1 Conjunctive Management and Groundwater Storage

Conjunctive management is the coordinated operation of surface water storage and use, groundwater storage and use, and the necessary conveyance facilities. Conjunctive management allows surface water and groundwater to be managed in an efficient manner by taking advantage of the ability of surface storage to capture and temporarily store storm water and the ability of aquifers to serve as long-term storage.

#### 4.2.3.2 Desalination – Brackish/Seawater

Desalination is a water treatment process for the removal of salt from water for beneficial use. Desalination is used on brackish (low-salinity) water as well as seawater. In California, the principal method for desalination is reverse osmosis. 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.

#### 4.2.3.3 Precipitation Enhancement

Precipitation enhancement, commonly called “cloud seeding,” artificially stimulates clouds to produce more rainfall or snowfall than they would naturally. Cloud seeding injects special substances into the clouds that enable snowflakes and raindrops to form more easily.

#### 4.2.3.4 Recycled Municipal Water

Water recycling, also known as reclamation or reuse, is an umbrella term encompassing the process of treating wastewater, storing, distributing, and using the recycled water. Recycled water is defined in the California Water Code to mean “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.”

#### 4.2.3.5 Surface Storage – CALFED

The CALFED *Record of Decision* (2000) identified five potential surface storage reservoirs that are being investigated by DWR, the US Bureau of Reclamation, and local water interests. Building one or more of the reservoirs would be part of CALFED’s long-term comprehensive plan to restore ecological health and improve water management of the Bay-Delta. The five (5) surface storage investigations are: Shasta Lake Water Resources Investigation, In-Delta Storage Project, Upper San Joaquin River Basin Storage Investigation, North-of-the-Delta Offstream Storage, and Los Vaqueros Reservoir Expansion.

#### 4.2.3.6 Surface Storage – Regional/Local

Surface storage is the use of reservoirs to collect water for later release and use. Surface storage has played an important role in California where the pattern and timing of water use does not always match the natural runoff pattern. Most California water agencies rely on

surface storage as a part of their water systems. Surface reservoirs can be formed by building dams across active streams or by building off-stream reservoirs where the majority of the water is diverted into storage from a nearby water source.

### 4.2.4 Improve Water Quality

#### 4.2.4.1 Drinking Water Treatment and Distribution

Drinking water treatment includes physical, biological, and chemical processes to make water suitable for potable use. Distribution includes the storage, pumping, and pipe systems to protect and deliver the water to customers.

#### 4.2.4.2 Groundwater/Aquifer Remediation

Groundwater remediation involves extracting contaminated groundwater from the aquifer, treating it, and discharging it to a water course or using it for some purpose. It is also possible to inject the treated water back into the aquifer. Contaminated groundwater can result from a multitude of sources, both naturally occurring and anthropogenic. Examples of naturally occurring contaminants include heavy metals, high TDS, and high salinity from specific geologic formations or conditions. Groundwater can also be contaminated from anthropogenic sources with organic constituents, inorganic constituents, and radioactive constituents from many point and non-point sources. These anthropogenic sources include industrial sites, mining operations, leaking tanks and pipelines, landfills, impoundments, dairies, agricultural and storm runoff, and septic systems.

#### 4.2.4.3 Matching Quality to Use

Matching water quality to water use is a management strategy that recognizes that not all water uses require the same quality water. One common measure of water quality is its suitability for an intended use, and a water quality constituent is often only considered a contaminant when that constituent adversely affects the intended use of the water. High quality water sources can be used for drinking and industrial purposes that benefit from higher quality water, and lesser quality water can be adequate for some uses, such as irrigation. Further, some new water supplies, such as recycled water, can be treated to a wide range of purities that can be matched to different uses.

#### 4.2.4.4 Pollution Prevention

Pollution prevention can improve water quality for all beneficial uses by protecting water at its source, reducing the need and cost for other water management and treatment options. By preventing pollution throughout a watershed, water supplies can be used, and re-used, for a broader number and types of downstream water uses. Improving water quality by protecting source water is consistent with a watershed management approach to water resources problems.

#### 4.2.4.5 Urban Runoff Management

Urban runoff management is a broad series of activities to manage both storm water and dry-weather runoff. Dry weather runoff occurs when, for example, excess landscape irrigation water flows to the storm drain. Urban runoff management is linked to several other resource strategies including pollution prevention, land use management, watershed management, water

use efficiency, recycled water, protecting recharge areas, and conjunctive management (combined use of surface and ground water systems to optimize resource use and minimize adverse effects of using a single source).

## 4.2.5 Promote Resource Stewardship

### 4.2.5.1 Agricultural Lands Stewardship

Agricultural lands stewardship broadly means conserving natural resources and protecting the environment by land managers whose stewardship practices conserve and improve land for food, fiber, watershed functions, soil, air, energy, plant and animal and other conservation purposes. It also protects open space and the traditional characteristics of rural communities. Further, it helps landowners maintain their farms and ranches rather than being forced to sell their land because of pressure from urban development.

### 4.2.5.2 Economic Incentives (Loans, Grants, Water Pricing)

Economic incentives are financial assistance and pricing policies intended to influence water management. For example, economic incentives can influence the amount of use, time of use, wastewater volume, and source of supply. Economic incentives include low-interest loans, grants, and water pricing rates. Free services, rebates, and the use of tax revenues to partially fund water services also have a direct effect on the prices paid by the water users. Governmental financial assistance can provide incentives for resource plans by regional and local agencies. Also, government financial assistance can help water agencies make subsidies available to their water users for a specific purpose.

### 4.2.5.3 Ecosystem Restoration

Ecosystem restoration can include changing the flows in streams and rivers, restoring fish and wildlife habitat, controlling waste discharge into streams, rivers, lakes or reservoirs, or removing barriers in streams and rivers so salmon and steelhead can spawn. Ecosystem restoration improves the condition of our modified natural landscapes and biotic communities to provide for the sustainability and for the use and enjoyment of these ecosystems by current and future generations.

*Flooding in the Upper Santa Clara River Region*

### 4.2.5.4 Floodplain Management

Floodplain management reduces risks to life and property and benefits natural resources. Floodplain management accepts periodic flooding and generally is a preferred alternative to keeping rivers in their channels and off floodplains. Seasonal inundation of floodplains provides essential habitat for hundreds of species of plants and animals, many of them dependent on periodic floods. There are also benefits to the economy, agriculture, and society to keeping rivers and their floodplains connected, including water quality improvements and groundwater recharge. Floodplain management also entails limiting the amount and type of development in a floodplain.

#### 4.2.5.5 Recharge Areas Protection

Recharge area protection includes keeping groundwater recharge areas from being paved over or otherwise developed and guarding the recharge areas so they do not become contaminated. Protection of recharge areas, whether natural or man-made, is necessary if the quantity and quality of groundwater in the aquifer are to be maintained. Existing and potential recharge areas must be protected so that they remain functional and they are not contaminated with chemical or microbial constituents.

#### 4.2.5.6 Urban Land Use Management

Effective urban land use management consists of planning for the housing and economic development needs of a growing population while providing for the efficient use of water and other resources. The way in which we use land – the type of use and the level of intensity – has a direct relationship to water supply and quality.

#### 4.2.5.7 Water-Dependent Recreation

Water-dependent recreation includes a wide variety of outdoor activities that can be divided into two (2) categories. The first category includes fishing, boating, swimming, and rafting, which occur on lakes, reservoirs, and rivers. The second category includes recreation that is enhanced by water features but does not require actual use of the water, such as wildlife viewing, picnicking, camping, and hiking.

*Recreation on Castaic Lake*

#### 4.2.5.8 Watershed Management

Watershed management is the process of evaluating, planning, managing, restoring, and organizing land and other resource use within an area of land that has a single common drainage point. Watershed management tries to provide sustainable human benefits, while maintaining a sustainable ecosystem. Watershed management assumes that a prerequisite for any project is the sustained ability for the watershed to maintain the functions and processes that support the native ecology of the watershed. This does not imply that a goal is to return to an undisturbed condition. Instead it implies an integration of human needs and environmental needs that allow the watershed to sustain ecological integrity over time while providing for sustainable community needs. It is recognized that watersheds are dynamic and the precise makeup of plants, animals, and other characteristics will change over time.

## 4.3 Water Management Strategies Adopted by Stakeholders

The following five broad categories of water management strategies are consistent with the *California Water Plan*, and were adopted by the Stakeholders in the process described in Section 3.1:

- Reduce Water Demand: Implement technological, legislative and behavioral changes that will reduce user demands for water.

- Improve Operational Efficiency: Maximize water system operational flexibility and efficiency, including energy efficiency.

- Increase Water Supply: Understand future regional demands and obtain necessary water supply sources.

- Improve Water Quality: Supply drinking water with appropriate quality; improve groundwater quality; attain water quality standards.

- Promote Resource Stewardship: Preserve and improve ecosystem health, improve flood management, preserve and enhance water dependent recreation.

As described in Section 3, a Stakeholder process was used to develop objectives for the IRWMP. The same Stakeholder process was used to develop strategies to meet the IRWMP objectives. While brainstorming issues, goals, and objectives for the Upper Santa Clara River Region, Stakeholders discussed and developed potential strategies to address these issues. A long "laundry list" of potential water management strategies was presented to the Stakeholder Group during the March 2007 Stakeholder meeting. A matrix matching strategies, objectives, and *California Water Plan* strategies was prepared for the May 2007 Stakeholder meeting and this matrix has been refined at subsequent meetings. Table 4.3-1 demonstrates the relationship of the Region's water management strategies with the *California Water Plan* strategies. Note that the table, due to its size, has been placed at the end of this section. There are several strategies in the matrix that are not described in detail herein; the list serves as a starting point for potential future strategies as this IRWMP evolves based on Stakeholder review and input. Strategies will be reviewed, enhanced, added or subtracted as the IRWMP progresses through time.

**OBJECTIVES OF UPPER SANTA CLARA RIVER IRWMP**

***Reduce Water Demand***: Implement technological, legislative and behavioral changes that will reduce user demands for water.

***Improve Operational Efficiency:*** Maximize water system operational flexibility and efficiency, including energy efficiency.

***Increase Water Supply:*** Understand future regional demands and obtain necessary water supply sources.

***Improve Water Quality***: Supply drinking water with appropriate quality; improve groundwater quality; and attain water quality standards.

***Promote Resource Stewardship:*** Preserve and improve ecosystem health; improve flood management; and preserve and enhance water-dependent recreation.

### 4.3.1 Reduce Water Demand

Existing methods to reduce water demand in the Region include the various water conservation programs implemented in the Region by the retail water purveyors for both urban and agricultural users.

#### 4.3.1.1 Agricultural Water Use Efficiency

Agricultural water use is diminishing in the Region as land uses change through time to generally more urban uses. The Region has no formal water use efficiency programs targeted specifically at agricultural users. However, certain users located within the Region have installed drip irrigation or utilize on-farm practices to maximize efficiency of water use.

#### 4.3.1.2 Urban Water Use Efficiency

CLWA, the retail purveyors and LACWWDs are signatories to the "Memorandum of Understanding Regarding Urban Water Conservation in California" (MOU). The urban water conservation BMPs included in the MOU are intended to reduce California's long-term urban water demands. The BMPs are currently implemented by the signatories to the MOU on a voluntary basis. By signing the MOU, CLWA, LACWWDs and the purveyors became members of the California Urban Water Conservation Council (CUWCC) and report their progress on BMP implementation to the CUWCC.

LACWWDs signed on behalf of the various district service areas in 1996. CLWA signed the urban MOU in February 2001 on behalf of its wholesale service area and pledged to implement several BMPs (listed below) at a wholesale support level. NCWD signed the MOU in 2002 on behalf of its retail service area. VWC signed the MOU in 2006 on behalf of its own retail service area. CLWA and the purveyors coordinate wherever possible to maximize efficiency and ensure the cost effectiveness of their conservation programs.

*Castaic Lake Water Agency's Conservatory Garden and Learning Center*

In coordination with the purveyors, CLWA has been implementing the following BMPs (which pertain to wholesalers) for several years (some prior to signing the MOU in 2001):

- BMP 3: System Water Audits, Leak Detection and Repair
- BMP 7: Public Information Programs
- BMP 8: School Education Programs
- BMP 10: Wholesale Agency Programs
- BMP 11: Conservation Pricing
- BMP 12: Water Conservation Coordinator
- BMP 13: Water Waste Prohibition (implementation during last drought)

For example, as part of BMP 3, CLWA does a monthly review of metered sales within their wholesale system compared to metered supply to determine if there is any water loss within their system. Since 2001, CLWA has also instituted implementation of BMP 2 (Residential Plumbing Retrofits) and BMP 14 (Residential Ultra Low Flush Toilet Replacement Programs) on behalf of the purveyors. After signing the MOU, the purveyors have initiated implementation of the remaining BMPs that are specific to retail water suppliers:

- BMP 1: Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers
- BMP 3: System Water Audits, Leak Detection and Repair
- BMP 4: Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections
- BMP 5: Large Landscape Conservation Programs and Incentives
- BMP 6: High-Efficiency Clothes Washing Machine Financial Incentive Programs
- BMP 9: Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts
- BMP 11: Conservation Pricing
- BMP 12: Conservation Coordinator
- BMP 13: Water waste Prohibition

Reports to the CUWCC on BMP implementation by CLWA and the purveyors were included in the 2005 UWMP. LACWWD Nos. 36 and 37 submit reports to the CUWCC separately. Additional savings are occurring Region-wide due to state interior plumbing code requirements that have been in effect since 1992, as well as due to changes in lot size and reduction in exterior square footage of new housing and commercial developments. These have begun to impact overall demand in the Region. The Region's water suppliers monitor water demand trends through time to assess those factors that are accounting for the reduction, and to attempt to quantify them.

As part of their water use efficiency programs and BMPs, many of the water agencies in the Region also have meter testing, repair, and replacement programs. Replacement of up to 2,800 outdated meters per year is included in CLWA's *Fiscal Year 2006/2007 Strategic Plan*. In addition VWC has a Meter Changeout Program. VWC tests and maintains meters as recommended by the American Water Works Association (AWWA) in the *Manual of Water Supply Practices, Water Meters – Selection, Installation, Testing, and Maintenance* (AWWA M6). VWC has determined that any meter older than 15 years in the system will be changed out on a priority basis. Approximately 1,500 meters a year are replaced in the VWC system. NCWD tests, replaces and/or repairs, as necessary, all residential and commercial meters 15 years or older. Larger landscape meters are tested on a more frequent basis, once every two years, and larger meters (3 inches or larger) are tested yearly or as needed.

Outside of the Valley, the only portion of the Region included in an urban water use efficiency program is LACWWD No. 37, by merit of LACWWDs being a signatory to the MOU.

### 4.3.2 Improve Operational Efficiency

A number of capital improvement projects and plans have been, and continue to be, conducted to improve operational efficiency in the Region. The major projects and plans are briefly discussed below.

#### 4.3.2.1 Conveyance

Every three years, CLWA prepares a *Capital Improvement Plan* which outlines the necessary infrastructure improvements needed to maintain operational efficiency. These include modifications to pipelines or pump stations, as well as operations management systems (such as supervisory control and data acquisition [SCADA]). The *Capital Improvement Plan* outlines the costs for the recommended facilities.

#### 4.3.2.2 System Re-operation

LACWWD No. 37 is currently planning a potential system modification to add the areas of Acton and Agua Dulce to its service area. This modification is discussed in the *Acton-Agua Dulce Conceptual Master Plan for Water Facilities* (2004) and is based on an assessment of current capacity and projected buildout water demands for Acton, Agua Dulce and LACWWD No. 37. The addition would improve operational efficiency in the two areas not currently being supplied. Among other infrastructure improvements, the expansion would require expansion of AVEK's treatment plant and supply pipeline and storage systems, as well as expansion of the Vincent Pump Station in LACWWD No. 37.

Water managers in the Region are constantly looking for ways to improve system operation efficiencies, with a particular emphasis on energy efficiency. Treatment plant and distribution system pumping schedules are constantly reviewed and assessed to obtain maximum operational efficiency. For example, NCWD participates in energy efficiency programs in partnership with Southern California Edison (SCE). They have conducted SCADA upgrades that allow NCWD to turn off pumps so that the pumps will not run at all times. They have made these upgrades at three locations: Four Bay Castaic, Well 12 Newhall, and Lost Canyon Booster Station Pinetree. SCE requests in advance for NCWD to cut the electricity load at least in half and NCWD responds by not operating pumps during the specified time periods. Initially, SCE estimated that this would occur up to six times a year; however, during the summer months, due to high demand for electricity, it may happen more often. SCE also tests pumps and motors for operational efficiency and if found to be inefficient, NCWD will replace the equipment and obtain a rebate from SCE. NCWD also practices time-of-day pumping in which pumping is conducted during off-peak hours. An example location where this program is conducted is within NCWD's Tesoro system. NCWDs Tesoro SCADA system is set so that the pumps fill the storage tanks only during off-peak hours.

CLWA is taking measures to increase treatment plant efficiency and reduce the waste of water. As part of the RVWTP Expansion, CLWA has proposed a new means of treating waste washwater whereby more water will be recovered and put back into the treatment process. Additionally, a pilot treatment plant is being installed that will allow the agency to model the treatment process and optimize treatment for, among other things, water efficiency and will result in improved plant performance at both the RVWTP and ESFP.

Another example is the Valencia WRP where power is generated using byproducts of the treatment process. At the Valencia WRP, a 500 kilowatt (kW) generator is driven by a reciprocating engine that runs on compressed digester gas. The electricity generated is returned to the Valencia WRP power grid, thus reducing the amount of electricity purchased for use at the WRP. In addition, the thermal energy generated by the engine is used to produce hot water, which is used to heat the WRP digesters.

### 4.3.3 Increase Water Supply

Several studies and assessments have been conducted in recent years in order to identify potential methods to increase water supply to the Region. A brief summary of these plans is provided below.

#### 4.3.3.1 Conjunctive Management and Groundwater Storage

In 2003, CLWA produced a *Draft Water Supply Reliability Plan (Reliability Plan)*. The plan outlines primary elements that CLWA should include in its water supply mix to obtain maximum overall supply reliability enhancement. These elements include both conjunctive use and groundwater banking programs, as well as water acquisitions. The *Reliability Plan* also contains a recommended implementation plan and schedule.

The *Reliability Plan* recommended that CLWA obtain total water banking storage capacity of 50,000 AF, with pumpback capacity of 20,000 AFY, by 2005. For the long-term, CLWA should obtain a total of 183,000 AF of storage capacity, with total pumpback capacity of 70,000 AFY by 2050. In response to this *Reliability Plan*, CLWA has established conjunctive use management efforts through water banking and groundwater storage as discussed in Section 2.6.4. Existing water banks in which CLWA participates for the benefit of its service area include the Semitropic Water Storage District and Rosedale-Rio Bravo Water Storage District water banks.

AVEK is in the process of developing a groundwater banking program in its service area. This program has not yet been developed to a level that would provide detailed information about its capabilities or its availability to users within the Region.

#### 4.3.3.2 Desalination

##### *4.3.3.2.1 Groundwater/Brackish Water*

The two sources of groundwater in the Region are water drawn from the Alluvial Aquifer and from the Saugus Formation. Neither of these supplies can be considered brackish in nature, and desalination is not required.

Water managers in the Region could partner with SWP contractors and provide financial assistance for the construction of regional groundwater desalination facilities, in exchange for SWP supplies. The desalinated water would be supplied to users in communities near the desalination plant, and a similar amount of SWP supplies would be exchanged and allocated to CLWA or AVEK (the two SWP contractors in the Region).

In addition, should an opportunity emerge with a local agency other than an SWP contractor, an exchange of SWP deliveries would most likely involve a third party, such as the Metropolitan Water District of Southern California (MWD). Most local groundwater desalination facilities

would be projects implemented by retailers of SWP contractors and, if an exchange program was implemented, would involve coordination and wheeling of water through the contractor's facilities to CLWA or AVEK (CLWA 2005).

#### *4.3.3.2.2 Seawater*

Because the Region is not in a coastal area, it is neither practical nor economically feasible for water managers in the Region to implement a seawater desalination program. However, similar to the brackish water and groundwater desalination opportunities described above, water managers in the Region could provide financial assistance to other SWP contractors in the construction of their seawater desalination facilities in exchange for SWP supplies.

Most of the existing and proposed seawater desalination facilities are or would be operated by agencies that are not SWP contractors. However, in these cases (as described above for groundwater/brackish water), an exchange for SWP deliveries would most likely involve a third party (SWP contractor), the local water agency constructing the desalination facility (retailer), and CLWA or AVEK (CLWA 2005). For example, the Bay Area Regional Desalination Partnership, made up of four agencies collaborating on a Regional Desalination Project in the San Francisco Bay Area, is working to develop desalination as a water supply for that region. This partnership, comprised of San Francisco Public Utilities Commission, Santa Clara Valley Water District, East Bay Municipal Utilities District, and Contra Costa Water District, is in the process of planning regional seawater/brackish water desalination facilities. CLWA could participate in this regional desalination project on an exchange basis (CLWA 2005), and would receive exchanged SWP Table A Amount from one of the partners who is an SWP contractor.

### 4.3.3.3 Precipitation Enhancement

At this time, no known precipitation enhancement efforts have occurred or are planned in the Region.

### 4.3.3.4 Recycled Municipal Water

CLWA prepared a *Draft Recycled Water Master Plan* in 2002, which updated a previous master plan completed in 1993. The 2002 *Recycled Water Master Plan* identifies the sources of recycled water in the CLWA service area, their potential constraints, and potential recycled water users. A recycled water model was prepared to size the recommended recycled water infrastructure system. Additionally, the 2002 *Recycled Water Master Plan* presents the regulatory and permitting requirements, potential funding opportunities, and an implementation plan for the proposed system. The Final EIR for the *Recycled Water Master Plan* was certified in March 2007, and the Notice of Determination was filed on March 29, 2007. To date, Phase 1A of the proposed recycled water system has been completed.

### 4.3.3.5 Water Transfers

As discussed in Section 2.6.5, CLWA has entered into an agreement with Buena Vista Water Storage District/Rosedale-Rio Bravo Water Storage District for a transfer of 11,000 AFY of firm water supply. The supply is based on existing long-standing Kern River water rights. This transfer is an example of a voluntary agreement among parties for an exchange of water. Some of the parties have rights to supplies in excess of their needs, and another party will be assisted in meeting its increasing demands. This transfer also allows for conjunctive use options, in that

water not needed in a given year can be banked in Rosedale-Rio Bravo Water Storage District until a later time when it may be needed. This flexibility provides several operational efficiencies as well as increasing water supply to the Region.

#### 4.3.3.6 Surface Storage- CALFED

At this time, none of the CALFED surface storage facilities have been constructed. Two of the proposed facilities have been determined to be feasible and will be subjected to further analysis: Sites Reservoir in Glenn and Colusa Counties, and Temperance Flat Reservoir expansion in Fresno County. Future analysis would need to be undertaken to determine if the water agencies in the Region would be willing to financially participate in the construction and operations and maintenance of either of these surface storage options.

#### 4.3.3.7 Surface Storage- Regional/Local

As part of its water supply contract with DWR, CLWA has access to a portion of the storage capacity of Castaic Lake. This Flexible Storage Account allows CLWA to utilize up to 4,684 AF of the storage in Castaic Lake. Any of this amount that CLWA borrows must be replaced by CLWA within five years of its withdrawal. CLWA manages this storage by keeping the account full in normal and wet years and then delivering that stored amount (or a portion of it) during dry periods. The account is refilled during the next year that adequate SWP supplies are available to CLWA to do so. CLWA has recently negotiated with Ventura County water agencies to obtain the use of their Flexible Storage Account. This allows CLWA access to another 1,376 AF of storage in Castaic Lake. CLWA access to this additional storage is available on a year-to-year basis for ten (10) years as of 2006. The total storage amount is 6,060 AF.

### 4.3.4 Improve Water Quality

#### 4.3.4.1 Drinking Water Treatment and Distribution

CLWA recently completed a Chloramines Conversion Project. The project involved the system-wide conversion from chlorine disinfection methods to chloramines disinfection techniques. There are multiple benefits from using chloramines instead of chlorine for disinfection of water. Chloramines last longer in water, they are more effective at removing pathogens like bacteria and viruses, and they create fewer by-products (e.g., Trihalomethanes). CLWA converted to chloramines in order to meet drinking water standards as required by the US EPA. This project ensures that the higher water quality standards are met.

*Castaic Lake Stores SWP Water for Treatment*

CLWA operates two water treatment plants: the ESFP located in Castaic and the RVWTP located in the City of Santa Clarita. As of June 2007, an expansion of the RVWTP from 30 mgd to 60 mgd is currently underway and will be complete within a year. The RVWTP obtains its raw water supply from SWP water stored in Castaic Lake via a 201-inch diameter pipeline (the

Foothill Feeder) owned and operated by MWD, one 42-inch diameter pipeline connection to the Foothill Feeder and one 102-inch diameter pipeline (that conveys raw water to CLWA's Intake Pump Station [IPS]), and a 102-inch diameter raw water pipeline between the IPS and the RVWTP site. The increase in capacity of the RVWTP is taking place in response to current and new water quality standards, and is intended to improve reliability to meet existing customer demands and planned future demand. The 16,790 AFY of additional treated water would be able to serve approximately between 17,309 and 18,054 households, or between approximately 55,389 and 57,773 persons. Additionally, modifications to the existing ozone treatment system will be completed. As part of the expansion, a parallel connection to the existing 42-inch connection to the MWD 201-inch Foothill Feeder pipeline will be constructed (including a connection to a new MWD 48-inch valve) and modifications to the IPS to increase the capacity to 60 mgd will be completed. No new water supply is associated with this expansion (CLWA 2006).

The ESFP was expanded from 33.6 mgd to 56 mgd and the upgraded facility went online in August 2005. Originally built in 1980 and expanded in 1987, the ESFP treats SWP water transported to Castaic Lake. From there, the water is piped to the ESFP for treatment. The expansion project had several components: improvements to the existing raw water treatment system, including replacement of the existing raw water pumping plant with a 56 mgd capacity pump facility, and installation of a 54-inch bypass pipeline within the existing easement to improve the existing raw water gravity flow system; at the filtration plant, construction of a new structure containing new ozone facilities for primary disinfection and chemical system for secondary disinfection; pre-filtration improvements, including new contact clarifiers and other equipment; conversion of the filtration system to deep bed monomedium filters using anthracite filter media and related equipment upgrades; and modifications to the washwater recovery system including installations of a new treatment system within an existing structure. Some of the proposed modifications were needed to comply with changing regulations that regulate drinking water quality. The existing ESFP would have been out of compliance by 2004. Expansion of the water treatment plant provided a component of the CLWA water delivery system necessary to treat the water for a portion of planned growth in the Valley (CLWA 2002).

#### 4.3.4.2 Groundwater/Aquifer Remediation

As discussed in Section 2.8.6, the detection of perchlorate in Valley groundwater supplies has raised concerns over the reliability of those supplies, in particular the Saugus Formation, where four wells have been removed from active service as a result of perchlorate. Planning and design for remediation of the perchlorate and restoration of the impacted well capacity are now complete. Under the current schedule for restoring contaminated water supply (wells), construction started in mid-2007 and treatment is anticipated by fall 2008. CLWA, the local retail water purveyors, DTSC, and US ACE will continue to work closely on the perchlorate contamination issue. While the remediation of the affected wells is being completed, non-impacted production facilities can be relied upon for the quantities of water projected to be available from the Alluvial Aquifer and Saugus Formation during the time necessary to restore perchlorate-impacted wells.

#### 4.3.4.3 Matching Quality to Use

Not all water uses require the same quality of water or level of water treatment. Potable water should be reserved for those uses that require potable water standards (e.g., drinking water supplies), while other uses that do not require potable water (industrial, construction, landscape

and agricultural irrigation) can use recycled water. Various laws are in place to ensure water quality matches use, including Title 22, Chapter 4 of the California Code of Regulations (Title 22). Under Title 22, DPH has set bacteriological water quality standards on the basis of the expected degree of public contact with recycled water. Title 22 identifies several levels of recycled water based on level of treatment and disinfection, including: Disinfected Tertiary Recycled Water; Disinfected Secondary-23 Recycled Water; Disinfected Secondary-2.2 Recycled Water; and Undisinfected Secondary Recycled Water. Title 22 further identifies allowable uses for each of these different levels of recycled water based on the potential impacts to public health. Table 4.3-2 summarizes the allowable uses of water given various treatment levels.

Table 4.3-2 demonstrates that there are many potential uses for recycled water. The Saugus and Valencia WRPs provide primary, secondary and tertiary treatment. Primary treatment removes a large portion of wastewater solids using settling basins and flocculation (primary treated water is not used in California). Secondary treatment adds biological treatment and may or may not include disinfection. Tertiary treated recycled water involves coagulation, flocculation, clarification, filtration and disinfection steps. The Saugus and Valencia WRPs produce disinfected tertiary recycled water, suitable for the anticipated use of recycled water for landscape irrigation for users identified in the 2002 *Recycled Water Master Plan*.

Matching quality of water to use is not limited to recycled water. For example, water high in nitrate must be blended in order to make this water appropriate for drinking water. However, this same water, if managed properly, can be used for irrigation. Water high in nitrate is only recommended for certain types of crops and must be applied in combination with the right fertilizers. For some applications, nitrate in irrigation water reduces the need to apply fertilizers with nitrogen.

#### 4.3.4.4 Pollution Prevention

Pollution prevention acts to limit discharges to water that negatively affect beneficial uses. The Los Angeles RWQCB seeks to avoid pollution by regulating discharges from various land uses, industrial uses, septic systems, leaking underground storage tanks, and by controlling dredging. Improving water quality/pollution prevention assists other water management strategies such as “Promote Resource Stewardship.”

*Valencia Water Company Water Softening Demonstration Project*

**TABLE 4.3-2**
**ALLOWED USES OF RECYCLED WATER**

| Potential Use | Treatment Level: Disinfected Tertiary Recycled Water | Disinfected Secondary-2.2 Recycled Water | Disinfected Secondary-23 Recycled Water | Undisinfected Secondary Recycled Water |
|---|---|---|---|---|
| *Use of Recycled Water for Irrigation* | | | | |
| Food crops where recycled water contacts the edible portion of the crop, including all root crops. | Allowed | Not allowed | Not allowed | Not allowed |
| Parks and playgrounds. | Allowed | Not allowed | Not allowed | Not allowed |
| School yards. | Allowed | Not allowed | Not allowed | Not allowed |
| Residential landscaping. | Allowed | Not allowed | Not allowed | Not allowed |
| Unrestricted access golf courses. | Allowed | Not allowed | Not allowed | Not allowed |
| Food crops where edible portion is produced above ground and not contacted by recycled water. | Allowed | Allowed | Not allowed | Not allowed |
| Cemeteries. | Allowed | Allowed | Allowed | Not allowed |
| Freeway landscaping. | Allowed | Allowed | Allowed | Not allowed |
| Restricted access golf courses. | Allowed | Allowed | Allowed | Not allowed |
| Ornamental nursery stock and sod farms. | Allowed | Allowed | Allowed | Not allowed |
| *Use of Recycled Water for Irrigation* | | | | |
| Pasture for milk animals. | Allowed | Allowed | Allowed | Not allowed |
| Nonedible vegetation with access control to prevent use as a park, playground or school yard. | Allowed | Allowed | Allowed | Not allowed |
| Orchards with no contact between edible portion and recycled water. | Allowed | Allowed | Allowed | Allowed |
| Vineyards with no contact between edible portion and recycled water. | Allowed | Allowed | Allowed | Allowed |
| Non food-bearing trees, including Christmas trees not irrigated less than 14 days before harvest. | Allowed | Allowed | Allowed | Allowed |
| Fodder crops (e.g. alfalfa) and fiber crops (e.g. cotton). | Allowed | Allowed | Allowed | Allowed |
| Seed crops not eaten by humans. | Allowed | Allowed | Allowed | Allowed |
| Food crops that undergo commercial pathogen-destroying processing before consumption by humans. | Allowed | Allowed | Allowed | Allowed |

| Potential Use | Treatment Level: Disinfected Tertiary Recycled Water | Disinfected Secondary-2.2 Recycled Water | Disinfected Secondary-23 Recycled Water | Undisinfected Secondary Recycled Water |
|---|---|---|---|---|
| Ornamental nursery stock, sod farms not irrigated less than 14 days before harvest. | Allowed | Allowed | Allowed | Allowed |
| *Use of Recycled Water for Impoundments* | | | | |
| Non-restricted recreational impoundments, with supplemental monitoring. | Allowed[a] | Not allowed | Not allowed | Not allowed |
| Restricted recreational impoundments and publicly accessible fish hatcheries. | Allowed | Allowed | Not allowed | Not allowed |
| Landscape impoundments without decorative fountains. | Allowed | Allowed | Allowed | Not allowed |
| *Use of Recycled Water for Cooling* | | | | |
| Industrial or commercial cooling or air conditioning involving cooling tower, evaporative condenser, or spraying that creates a mist. | Allowed[b] | Not allowed | Not allowed | Not allowed |
| Industrial or commercial cooling or air conditioning not involving a cooling tower, evaporative condenser, or spraying that creates a mist. | Allowed | Allowed | Allowed | Not allowed |
| *Use of Recycled Water for Other Purposes* | | | | |
| Groundwater recharge | Allowed under special case-by-case permits by RWQCBs[c] | Groundwater recharge | Allowed under special case-by-case permits by RWQCBs[c] | Groundwater recharge |
| Flushing toilets and urinals | Allowed | Flushing toilets and urinals | Allowed | Flushing toilets and urinals |
| Priming drain traps | Allowed | Priming drain traps | Allowed | Priming drain traps |
| Industrial process water that may contact workers | Allowed | Industrial process water that may contact workers | Allowed | Industrial process water that may contact workers |
| Structural fire fighting | Allowed | Structural fire fighting | Allowed | Structural fire fighting |
| Decorative fountains | Allowed | Decorative fountains | Allowed | Decorative fountains |
| *Use of Recycled Water for Other Purposes* | | | | |
| Commercial laundries | Allowed | Not allowed | Not allowed | Not allowed |
| Consolidation of backfill material around potable water pipelines. | Allowed | Not allowed | Not allowed | Not allowed |

| Potential Use | Treatment Level: Disinfected Tertiary Recycled Water | Disinfected Secondary-2.2 Recycled Water | Disinfected Secondary-23 Recycled Water | Undisinfected Secondary Recycled Water |
|---|---|---|---|---|
| Artificial snow making for commercial outdoor uses. | Allowed | Not allowed | Not allowed | Not allowed |
| Commercial car washes not done by hand & excluding the general public from washing process. | Allowed | Not allowed | Not allowed | Not allowed |
| Industrial boiler feed. | Allowed | Allowed | Allowed | Not allowed |
| Nonstructural fire fighting. | Allowed | Allowed | Allowed | Not allowed |
| Backfill consolidation around nonpotable piping. | Allowed | Allowed | Allowed | Not allowed |
| Soil compaction. | Allowed | Allowed | Allowed | Not allowed |
| Mixing concrete. | Allowed | Allowed | Allowed | Not allowed |
| Dust control on roads and streets. | Allowed | Allowed | Allowed | Not allowed |
| Cleaning roads, sidewalks and outdoor work areas. | Allowed | Allowed | Allowed | Not allowed |
| Flushing sanitary sewers. | Allowed | Allowed | Allowed | Allowed |

Source*:* California Health Laws Related to Recycled Water, "The Purple Book" *Excerpts from the Health and Safety Code, Water Code, and Titles 22 and 17 of the California Code of Regulations. Last Update: June 2001*

Notes:

(a) With "conventional tertiary treatment." Additional monitoring for two years or more is necessary with direct filtration.

(b) Drift Eliminators and/or biocides are required if public or employees can be exposed to mist.

(c) Refer to Groundwater Recharge Guidelines, California Department of Health Services.

One program used by the Los Angeles RWQCB is the TMDL program. The Region currently has two TMDLs adopted by the Los Angeles RWQCB, one for nitrogen compounds (Reaches 7 and 8) and one for chlorides (Reaches 5 and 6). Table 4.3-3 identifies and describes the geographic locations of the reaches of the Upper Santa Clara River that lie within the Region as identified in the adopted Basin Plan (see also Figure 2.1-1).

**TABLE 4.3-3**
**UPPER SANTA CLARA RIVER REACHES**

| Reach Number | Reach Name | Geographic Description |
|---|---|---|
| 5 (part of Reach 5 is outside the Region, in Ventura County) | Blue Cut | Upstream of USGS Blue Cut Gauging Station to the West Pier Highway 99/Old Road Bridge |
| 6 | Highway 99 | Upstream of Highway 99 to Bouquet Canyon Bridge |
| 7 | Bouquet Canyon | Upstream of Bouquet Canyon to Lang Gauging Station |
| 8 | Above Lang Gauging Station | Lang Gauging Station to headwaters |

The nitrogen compounds TMDL was established due to the listing of various reaches of the Santa Clara River for Nitrate + Nitrite on the 303(d) list of impaired water bodies in 1998. The source analysis for the nitrogen compound TMDL found discharge of reclaimed water to be one

of the sources of nitrogen compounds in the river, along with agricultural runoff, storm water runoff, and groundwater discharge. Given these sources, wasteload allocations for nitrogen compounds were assigned to the various sources. The nitrogen compounds TMDL was included as a Los Angeles RWQCB *Basin Plan Amendment* in August 2003.

The chloride TMDL was established due to the listing of Reaches 5 and 6 of the Upper Santa Clara River for chloride on the 303(d) list of impaired water bodies in 1998. The chloride TMDL includes a number of special studies to provide scientific certainty over the appropriate wasteload allocations and objectives for chloride that are necessary to protect various beneficial uses, including salt-sensitive agriculture and endangered species.

#### 4.3.4.5 Urban Runoff Management

The US EPA approved the SWRCB and nine RWQCBs for enforcement of the storm water regulations identified in the Clean Water Act. The SWRCB elected to issue one statewide General Construction Activity Storm Water Permit (General Permit) which applies to all construction activity (except those areas on Indian lands and the Lake Tahoe Hydrologic Unit). In the Region, the Los Angeles RWQCB enforces storm water regulations.

The General Permit requires the development and implementation of Storm Water Pollution Prevention Plans (SWPPP) emphasizing storm water BMPs. All dischargers must prepare, retain at the construction site, and implement a SWPPP. The SWPPP has two major objectives:

- To help identify the sources of sediment and other pollutants that affect the quality of storm water discharges.
- To describe and ensure the implementation of practices to reduce sediment and other pollutants in storm water discharges.

The SWPPP should include the following information:

- Site description addressing the elements and characteristics specific to the site
- Descriptions of BMPs for erosion and sediment controls
- BMPs for construction waste handling and disposal
- Implementation of approved local plans
- Proposed post-construction controls, including description of local post-construction erosion and sediment control requirements
- Non-storm water management

Prior to issuing a grading or building permit, the City of Santa Clarita requires that each entity applying for such demonstrate compliance with the General Construction Activity Storm Water Permit (where applicable) or by implementation of alternative grading and construction activity run-off control programs. In addition to regulating storm water runoff, the City of Santa Clarita regulates pollutants from industrial activities. The City of Santa Clarita requires that entities

engaged in industrial activities and subject to the General Industrial Activities Storm Water Permit demonstrate compliance with that permit prior to making any discharges to the sewer system. Owners of parking lots associated with industrial or commercial activities and with more than twenty-five parking spaces exposed to storm water are required to implement BMPs to reduce the discharge of pollutants. These requirements are a part of the City of Santa Clarita's role as a permitee under the Los Angeles County Municipal Storm Water National Pollutant Discharge Elimination System Permit (NPDES No. CAS004001) issued by the Los Angeles RWQCB. As a permitee, the City of Santa Clarita also has outreach and education efforts related to urban runoff, performs inspections for proper application of BMPs at industrial, commercial, and construction sites, performs street sweeping, maintains catch basins, and provides trash collection.

The City of Santa Clarita is one of 84 cities along with the LACFCD (the primary permitee) that are covered by the County Municipal Storm Water NPDES. The objective of this permit is to protect the beneficial uses of receiving waters in the County. To meet this objective, the permit requires that BMPs will be implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable. Permitees are required to implement BMPs related to:

- Public Information and Participation Programs.
- Industrial/Commercial Facilities Control Program.
- Development Planning Program (Program to limit post-construction runoff from developments).
- Development Construction Program (program to limit runoff from construction activities).
- Public Agency Activities Program (program to limit storm water pollutant impacts from public agency activities).
- Illicit Connections and Illicit Discharges Elimination Program (program to prevent unauthorized discharges to the sewer system).

### 4.3.5 Promote Resource Stewardship

Existing practices employed in the Region as part of ongoing resource stewardship efforts include the following broad-based land use, watershed and floodplain management activities, policies and programs implemented by various entities in the Region for both urban and agricultural users.

*Aerial View of the Upper Santa Clara River Watershed*

Efforts include, but are not limited to: land use management plan development; land and habitat conservation plan development; land use designation for conservation; land acquisition for conservation; impact mitigation plan development; endangered species recovery plan development; restoration and enhancement plan development; Sensitive Resource Area designation; SEA planning (County); and the

work of private resources, conservation organizations, tasks forces, and concerned citizen groups, as summarized below (VCWPD and LACDPW 2005).

#### 4.3.5.1 Agricultural Lands Stewardship

Agricultural lands stewardship is a critical component of planning for resource conservation and water use efficiency. Approximately 38,400 acres in the Upper Santa Clara River Watershed are zoned agricultural. Several well-established incentive programs to support agricultural land preservation are implemented throughout the Region. A Williamson Act Contract, prepared pursuant to the California Land Conservation Act of 1965, provides an approximately 25 to 75 percent property tax break to private landowners in exchange for a voluntary agreement to maintain ongoing agricultural use for a rolling 10-year period. The contract automatically renews at the end of 10 years unless a notice of non-renewal is filed prior.

Numerous federal programs administered by the Natural Resource Conservation Service (NRCS) provide support for protecting water resources and natural habitats while preserving agricultural and grazing lands. These Farm Bill programs, resulting from passage of the Farm Security and Rural Investment Act of 2002 and renewal of funding for its key conservation programs in 2007, provide farmers and ranchers incentives such as cost-share, land rentals, incentive payments, and technical assistance, to respond to the range of emerging natural resource challenges related to the management of their lands.

Local land use planning also serves as an important venue to promote agricultural land stewardship. Updates and modifications to policies further supporting and protecting existing and future agricultural use from urban encroachment and conversion are under consideration as part of the Los Angeles *Countywide General Plan* update and the Valley's *OVOV Area Plan* update. National and regional non-profit organizations are also involved in implementing resource conservation strategies that focus on agricultural land management. The Nature Conservancy provides one example. Currently, The Nature Conservancy is exploring possibilities to implement a program designed to encourage ecologically compatible and economically viable local farming operations to act as a buffer zone between the river and developed areas.

#### 4.3.5.2 Economic Incentives

Economic incentives to promote resource stewardship include the provision of grants and other forms of financial assistance to land owners, water purveyors, and wastewater agencies, bonding and tax policies, as well as the implementation of pricing to promote efficient water use. Land acquisition for the purpose of protection and restoration of significant ecological areas is another important strategy that utilizes the financial market to help achieve stewardship goals.

In addition to the incentive programs discussed under the agricultural land stewardship section, other voluntary restoration programs offer financial incentives to landowners. US FWS "Partners for Fish & Wildlife" Program is one such program offered in the Region. The Partners for Fish & Wildlife Program provides funds and technical assistance to landowners, and supports the restoration and enhancement of wetlands, native grasslands, and other declining habitats, for the benefit of threatened and endangered species, migratory birds, and other wildlife. Supported regional activities include the removal of invasive non-native plants, such as arundo, and reintroduction of native plant species to riparian areas. Large land acquisition efforts are also underway by the Coastal Conservancy and The Nature Conservancy for

watercourse expansion, flood management activities, and the protection and restoration of habitat and wildlife corridors along the Upper Santa Clara River.

#### 4.3.5.3 Ecosystem Restoration

Ecosystem restoration refers to the restoration of natural areas that have been altered as a result of anthropogenic pressures such as agriculture, urban development and pollution. In many ways, the purpose of ecosystem restoration is not only to improve the intrinsic value of the lands themselves, but to strengthen their ability to provide important ecosystem services such as groundwater recharge and flood protection.

Various restoration efforts are underway throughout the Region. The Nature Conservancy is facilitating restoration of southern steelhead habitat along the Santa Clara River through a variety of measures, including planting vegetation filter strips along urban and agricultural interfaces to filter contaminants, planting native vegetation along riverbanks to lessen erosion and to reduce sediment loading, and conducting exotic plant removal and native vegetation restoration pilot projects. The Nature Conservancy has acquired 40 acres in the Upper Santa Clara River Watershed with immediate plans to acquire an additional 350 acres (3 parcels total) in the floodplain (personal communication, EJ Remson 2007). In addition, the Sierra Club's Santa Clara River Greenway Campaign is underway to bring the entire 500-year floodplain of the Santa Clara River from the City of Fillmore to the community of Acton into public ownership and protection for improved water quality and quantity, enhancement of plant and wildlife species habitats, protection of open space attributes and aesthetics, increased river fluvial dynamics, and maintenance of agricultural resources.

The Friends of the Santa Clara River (Friends) is another non-profit conservation group with a focus on the protection, preservation and enhancement of the Region's riparian and watershed-dependent resources. In the Upper Santa Clara River Watershed, Friends works with The Nature Conservancy and Southcoast Wildlands on some of their acquisition efforts in the Soledad Canyon area. They also have a stream team that samples the river water once a month at two Upper Santa Clara River sites.

Other restoration efforts underway include implementation of the *ARCO Oil Spill Restoration Plan*, developed by the US FWS and the CDFG's Office of Spill Prevention and Response. This restoration plan resulted from an oil spill settlement that stipulated funds be used for habitat rehabilitation, re-vegetation and/or protection of areas within the Santa Clara River Watershed, and for wildlife projects that benefit endangered species.

In July 2007, voters in the City of Santa Clarita voted to form an open space preservation district. The annual cost to single family homeowners will be $25; condominium and townhouse owners will pay slightly less and those who own larger, non residential parcels will pay more. In future years, fees for the open space preservation district can increase by no more than $1 per year and only if approved by the City Council, following a public hearing. The open space preservation district is intended to purchase lands in and around the City and finish the City's greenbelt buffer (City of Santa Clarita 2007).

#### 4.3.5.4 Floodplain Management

The floodplain is the low land adjacent to a natural watercourse which is subject to inundation during a given flood event. In terms of hydrology, the floodplain may be defined as the water

level attained in some particular stage of the river (VCWPD and LACDPW 2005). Floodplain management is an important component of comprehensive land use management, and has the potential to provide numerous benefits, including flood protection from property damage and loss of life, habitat for riverine and riparian species, water quality improvements, and groundwater recharge. The LACFCD is currently implementing many flood management programs throughout the Region.

As described in Section 2, the river is highly variable, with low flows for several years, followed by a period of high flows. In that portion where the river is in the Angeles National Forest/Soledad Canyon, the river is well defined and there are no flood control structures. Further downstream, within the City of Santa Clarita, a 2-mile reach of the river has been modified with rip-rap, soil cement, and concrete banks for flood control purposes.

#### 4.3.5.5 Recharge Areas Protection

The availability of local groundwater supplies is derived in part from the sustainability of the groundwater resource, or its ability to recharge. Groundwater resources rely heavily on groundwater recharge areas such as natural drainage channels, floodways and floodplains that help to replenish underlying aquifers. Identification and management of recharge areas is one of 14 elements comprising CLWA's 2003 *Groundwater Management Plan*. Such activities are critical to ensuring that the Valley groundwater basin continues to readily recharge, as historical operating experience demonstrates it has in the past.

The Los Angeles RWQCB is charged with the responsibility of developing solutions which will restore water quality and protect beneficial water uses, including groundwater recharge. The Los Angeles RWQCB's implementation of pollution prevention programs such as the federal Nonpoint Source Pollution Program, and participation in the US EPA's Brownfields Cleanup and Redevelopment Agency Program, are significant components of recharge area protection. Regional arundo removal efforts and the removal of other invasive, water-intensive plants also contribute to the protection of groundwater recharge areas.

A significant improvement to recharge area protection in the Valley will be provided by the remediation of the former Whittaker-Bermite site, which contains soils contaminated with perchlorate and other contaminants.

#### 4.3.5.6 Urban Land Use Management

Urban land use decisions generally occur at the local level, but these decisions can impact the ecological health of regional systems, including the hydrologic cycle and local water quality and supply. General plans throughout the Upper Santa Clara River Watershed are therefore important policy tools that can guide land use decision-making to simultaneously protect the community's economic interests and public and environmental health needs. The City of Santa Clarita's general planning process includes strategic planning efforts for land use and resource conservation. The Los Angeles *Countywide General Plan* and the *Santa Clarita Valley Area Plan (OVOV)* are currently undergoing update processes. As part of the OVOV process the City of Santa Clarita and the County are currently in the process of creating a single general plan for the Valley and its communities. In addition to policies established by local land use plans, existing local policies and ordinances will be further strengthened as part of ongoing efforts to encourage and, in some cases, mandate low impact development adjacent to affected waterways in the Region. For example, development setbacks and landscape guidelines for

fuel management zones are established by the applicable land use jurisdiction for new development adjacent to or within the immediate vicinity of a water body, and the identification and implementation of sensitive biological resource areas overlay zones are under consideration, such as the one described below.

Los Angeles County Department of Regional Planning has proposed (but not yet adopted) the creation of a SEA that encompasses the entire County reach of the Santa Clara River and that includes existing SEA Nos. 19, 23, and 61. The proposed SEA meets several designation criteria and supports the protection and preservation of many regional biological resources, including habitat for core populations of endangered species, migration corridors, diverse and abundant plant and wildlife species assemblages, regionally distinct biotic communities, and areas that have high value for preservation because they represent relatively undisturbed examples of natural biotic communities in the Region. Management recommendations for the proposed SEA include limiting new developments to outside the existing floodplain margins to obviate the necessity for further bank stabilization, stringent review of proposals for new or increased groundwater extraction to prevent overdrafting of the shallow aquifer supporting riparian habitat areas, and requiring agricultural activities to employ BMPs to avoid unnecessary impacts to habitats. This range of proposed management strategies above represents the variety of resource stewardship approaches discussed so far.

The Newhall Land and Farming Company (NLF) is currently planning for the development of Newhall Ranch, a new community that will be located on NLF land west of the Interstate-5 freeway. The site is comprised of 12,000 acres, of which approximately half will be developed and half will be preserved as open space. NLF will be required to get approvals from the US ACE, the CDFG, US FWS, and the County, which will seek to balance development with environmental protection.

#### 4.3.5.7 Water-Dependent Recreation

Water-dependent recreation includes activities such as boating and fishing, which occur on lakes, reservoirs and rivers, and passive recreation such as camping and hiking that is enhanced by water features. Multiple lakes within the Upper Santa Clara River Watershed provide recreational opportunities of the first type to Region residents and seasonal visitors. Castaic Lake State Recreation Area, owned by DWR and managed by Los Angeles County Department of Parks and Recreation, offers boating, swimming and fishing opportunities. For anglers, Castaic Lake is known primarily for its largemouth bass fishing, but the lake also hosts a variety of additional game fish including trout and striped bass. Castaic Lake hosts team bass tournaments in the summer. Fall through spring, CDFG stocks Castaic Lake Lagoon with rainbow trout; Bouquet Creek, a tributary of the Santa Clara River, is stocked late spring through summer. In addition to fishing, Castaic Lake offers boating, waterskiing and jet skiing opportunities in approved areas.

The *Parks and Recreation Element* of City of Santa Clarita's *General Plan* has established the goal of utilizing the Santa Clara River as a central corridor for recreation. Policies proposed to achieve this goal included establishing the Santa Clara River as a major recreational focal point within the Valley, in part

*City of Santa Clarita Equestrian and Bike Trail*

through the development of a regional plan for the Santa Clara River. Because of the ephemeral nature of the river, water-dependent recreation in the Upper Watershed is severely limited and, throughout much of the year, non-existent. However, the County's backbone trail system runs along the river, improving river access and providing trails for walking, hiking and equestrian uses. The City of Santa Clarita has constructed a bike path system along major portions of the river and its tributaries within its jurisdictional limits. In addition, the City of Santa Clarita has plans for additional trails. See Figure 4.3-1 for a map of existing and proposed trails in the City of Santa Clarita. Given the ephemeral nature of the Upper Santa Clara River, these activities are enhanced by the presence of water on a seasonal basis.

#### 4.3.5.8 Watershed Management

Watershed management is a holistic and politically inclusive approach to protecting water and other natural resources that focuses on land use and development within the boundaries of an identified watershed. Following a *Reconnaissance Phase Study* initiated in March 2002, the Los Angeles District of the US ACE determined that a Santa Clara River Watershed feasibility study was merited. This effort would cover the whole Watershed, and would assess the predevelopment conditions of the Watershed, the current condition, and future condition scenarios. The effort will involve extensive modeling of the Watershed, and will be designed as a tool for decision makers. For example, the study will include a comprehensive update of hydrologic, hydraulic, and sediment (yield and transport) models for a range of flow rates for existing conditions and future conditions within the Santa Clara River. The study will include generating new cross section data from new topographic maps for specific areas with existing urbanization and areas with the potential of urbanization in the near future within the Santa Clara River Watershed. One outcome of the study will be computer models that can simulate the existing and future land use changes upstream and provide data to forecast changes to the flood flows (10-, 20-, 100-year floods) and low flows (daily, 1-year, 2-year flows) in the Santa Clara River. However, due to a lack of funding, the Santa Clara River Watershed feasibility study is behind schedule. The study could be completed in early 2010.

## 4.4 Call for Projects

Projects are the specific means for implementing strategies and the way objectives are ultimately achieved. To identify the many potential projects in the Region and to assess the collective contribution of these projects towards meeting the IRWMP objectives, development of this IRWMP included a "Call for Projects" which gave stakeholders the opportunity to directly submit their projects and project concepts for consideration. Stakeholders were encouraged to submit projects at any stage of development. Avenues available for participating in the Call for Projects included the submission of projects on a standard project information form, either submitted by electronic mail, by facsimile, or directly on-line via the IRWMP website (www.scrwaterplan.org).

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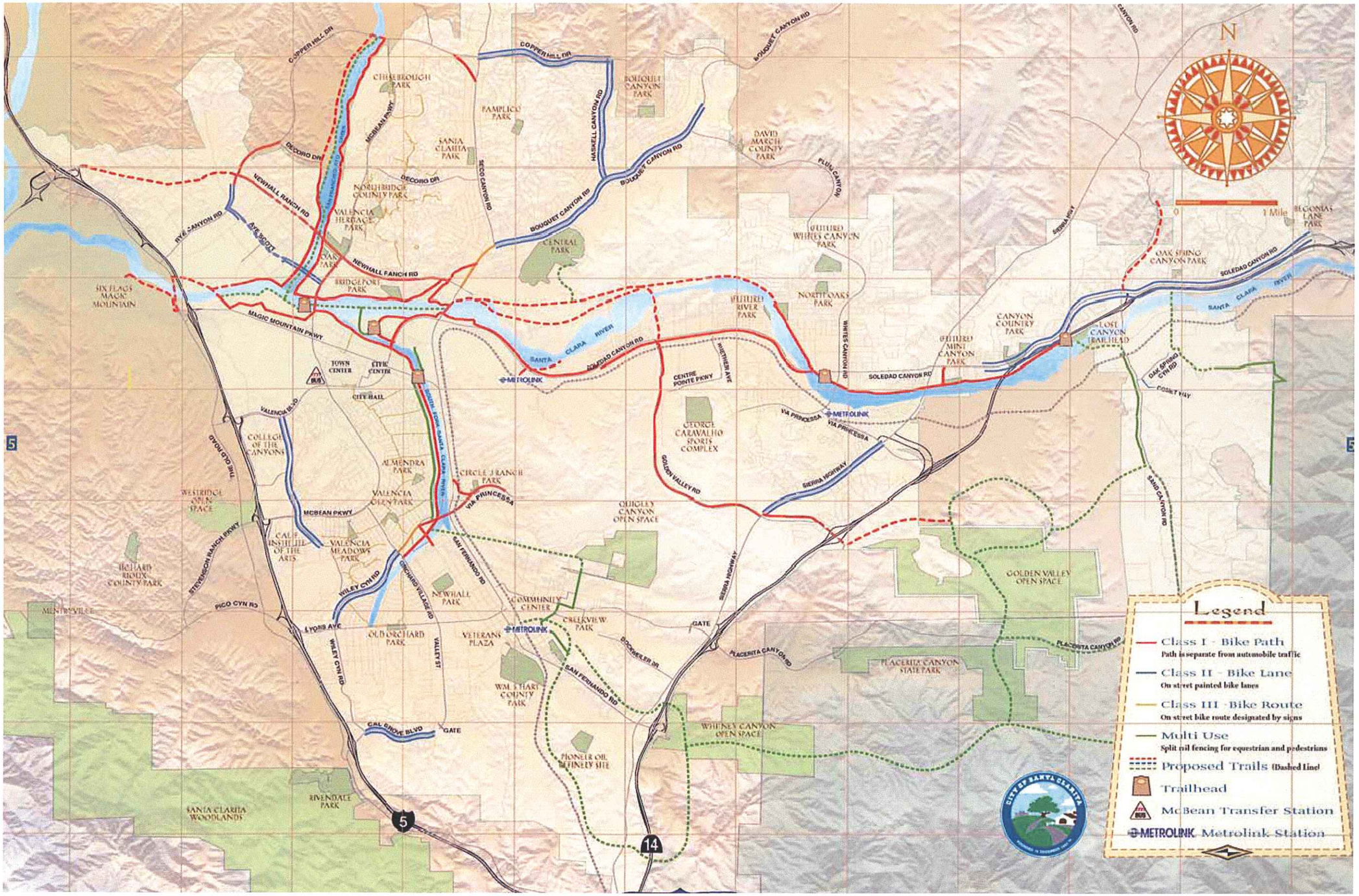


**Figure 4.3-1**
**Upper Santa Clara River IRWMP**
**City of Santa Clarita Trail System**

While many of the projects lack detailed supporting information, the Call for Projects provided a mechanism to engage Stakeholders in the process of sharing project information and discussing the issues related to the integration of projects. Many of the projects discussed in this section provide multiple benefits, spanning more than one strategy. Therefore, some assumptions were made with regard to which water management strategy a particular project would most benefit, to begin the initial organization of the projects. For example, a groundwater recharge project generally was assumed to provide water supply benefits, with a possible secondary benefit of addressing water quality needs. Section 5 will address this issue further by examining in greater detail how these projects can be integrated to provide multiple benefits.

The information provided herein represents the outcome of the initial step in a process of bringing individual projects into the collaborative process implied by this IRWMP. New projects are likely to be added to the database through time, and it is expected that Stakeholders will revise and update information on projects submitted.

Appendix C, Part 3, demonstrates the relationship between the projects received as part of the Call for Projects and the 24 *California Water Plan* water management strategies. In Appendix C, the projects are organized by project proponent (e.g., project sponsored by CLWA are given the names CLWA-1, CLWA-2, etc.).

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**TABLE 4.3-1**
**UPPER SANTA CLARA RIVER REGION WATER MANAGEMENT STRATEGIES AND CALIFORNIA WATER PLAN RESOURCE MANAGEMENT STRATEGIES**

| | California Water Plan Strategies | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agricultural Water Use Efficiency | Urban Water Use Efficiency | Conveyance | System Reoperation | Water Transfers | Conjunctive Management and Groundwater Storage | Desalination | Precipitation Enhancement | Recycled Municipal Water | Surface Storage – CALFED | Surface storage – Regional/Local | Drinking Water Treatment and Distribution | GW/Aquifer Remediation | Matching Water Quality to Water Use | Pollution Prevention | Urban Runoff Management | Agricultural Lands Stewardship | Economic Incentives | Ecosystem Restoration | Floodplain Management | Recharge Areas Protection | Urban Land Use Management | Water-Dependent Recreation | Watershed Management |
| **REDUCE WATER DEMAND** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urban Water Use Efficiency Measures | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 1: Residential Survey Programs | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 2: Residential Plumbing Retrofit | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 3: System Water Audits | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 4: Metering w/Commodity Rates | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 5 Large Landscape Conservation | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 6: High Efficiency Clothes Washers | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 7: Public Information Program | | • | | | | • | | | | | | • | | | | • | | • | | | • | | | | |
| BMP 8: School Education Programs | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 9: Commercial Industrial Institutional | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 10: Wholesaler Agency Assistance Programs | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 11: Conservation Pricing | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 12: Conservation Coordinator | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 13: Water Waste Prohibitions | | | | | | | | | | | | | | | | | | | | | | | | | |
| BMP 14: Residential Ultra-Low Flush Toilet Replacement Program | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agricultural Water-Use Efficiency Measures | • | | | | | • | | | | | | | | | | | • | • | | | • | | | | |
| **IMPROVE OPERATIONAL EFFICIENCY** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rehabilitation, Replacement, or Removal of Existing Facilities | • | • | • | • | | | | | | | | | | | | | | | | | | | | | |
| Improved Operational Efficiency Measures | • | • | | | | | | | | | | | | | | | | | | | | | | | |
| Intertie Projects | | | • | • | • | | | | | | | | | | | | | | | | | | | | |
| **INCREASE WATER SUPPLY** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Surface Reservoir or Storage Tank | | | | | | | | | | • | • | | | | | | | | | | | | | | |
| Surface Water Diversion | | | | • | | | | | | | | | | | | | | | | | | | | | |
| Groundwater Extraction Facilities | | | | | | • | | | | | | | | | | | | | | | | | | | |
| Aquifer Storage and Recovery | | | | | | • | | | | | | | • | | | | | | | | | | | | |
| Groundwater Management and Planning Policies | | | | | | • | | | | | | | • | | • | | | | | | • | | | | • |
| Groundwater Replenishment Including Spreading Grounds and Injection Wells<br>Aquifer Recharge with Reclaimed Water<br>Aquifer Recharge with Septic | | | | | | • | | | • | | | | • | | | | | | | | • | | • | | • |
| Hydrologic Modeling and Monitoring | | | • | • | | | | | | • | • | | | | | • | | | | • | | | | | |

**TABLE 4.3-1**
**UPPER SANTA CLARA RIVER REGION WATER MANAGEMENT STRATEGIES AND CALIFORNIA WATER PLAN RESOURCE MANAGEMENT STRATEGIES (CONT.)**

| | California Water Plan Strategies | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agricultural Water Use Efficiency | Urban Water Use Efficiency | Conveyance | System Reoperation | Water Transfers | Conjunctive Management and Groundwater Storage | Desalination | Precipitation Enhancement | Recycled Municipal Water | Surface Storage – CALFED | Surface Storage – Regional/Local | Drinking Water Treatment and Distribution | GW/Aquifer Remediation | Matching Water Quality to Water Use | Pollution Prevention | Urban Runoff Management | Agricultural Lands Stewardship | Economic Incentives | Ecosystem Restoration | Floodplain Management | Recharge Areas Protection | Urban Land Use Management | Water-Dependent Recreation | Watershed Management |
| Recycled Water for Irrigation or Other Beneficial Uses<br>Surplus Recycled Water from Other Regions | | | | | | | | | • | | | | | • | | | | | | | | | | |
| Increased Uses for Recycled Water through Policy Change and Education | | | | | | | | | • | | | | | • | | | | | | | | | | |
| Imported Water | • | • | • | • | • | • | | | | • | • | • | | | | | | | | | | | | • |
| Watershed Planning | | | | | | | | | | | | | | | | | • | | | | | • | | • |
| Rainwater Collection Systems (Cisterns) | | • | | | | • | | | | | | | | | | • | | | | | | | | |
| Greywater Systems | | • | | | | | | | • | | | | | | | | | | | | | | | |
| Water Banking, Exchange and Transfer Projects | | | • | • | • | • | | | | | | | | | | | | | | | | | | |
| Drought Contingency and Emergency Planning | • | • | • | • | • | • | | | | | • | • | • | | | | | | | | | | | • |
| Urban Water Management Planning | | • | | | | | | | | | | | | | | | | | | | | • | | |
| Removal of Invasive, Water-Thirsty Plants | | | | | | | | | | | | | | | | | | | • | • | • | | | • |
| Understand Total Water Usage in Region | • | • | | | | • | | | | | | | | | | | | | | | • | | | • |
| **IMPROVE WATER QUALITY** | | | | | | | | | | | | | | | | | | | | | | | | |
| Build Sewer Treatment Collection and Distribution Systems | | | | | | | | | | | | | | | • | | | | | | • | • | | |
| Rehabilitate or Upgrade Sewer Treatment Collection and Discharge Systems | | | | | | | | | | | | | | | • | | | | | | • | • | | |
| Relocate and Protect Sewer Treatment Collection and Discharge Systems - Remove from Vulnerable Locations | | | | | | | | | | | | | | | • | | | | | | • | • | | |
| TMDL Development and Implementation | | | | | | | | | | | | | | | • | • | | • | | | | | • | |
| Pump and Treat Water for Quality Enhancement | | | | | | | | | | | | | | | • | | | • | | | | | • | |
| Remove or Prohibit On-Site Water Softening Devices | | | | | | | | | | | | | | | • | | | | | | | | | |
| Replacement of Problematic Septic Tank Systems with Sewer Hook-Ups | | | | | | | | | | | | | | | • | | | | | | • | • | | |
| Fertilizer, Herbicide, and Pesticide Application Reduction | • | | | | | | | | | | | | | | • | | • | | | | | | | |
| Low Level Storm Water Treatment | | | | | | | | | | | | | | | • | • | | | | • | | | | |
| Non-Point Source Pollution Control<br>Landscape/Hardscape Retrofits | | | | | | | | | | | | | | | • | • | | | | | | • | | |
| Water Quality Monitoring (Requires Coordination Among Sampling Entities to be Effective) | | | | | | | | | | | | | | • | • | | | | | | | | | • |
| Improve Water Quality Being Discharged | | | | | | | | | • | | | • | | • | • | • | | | | | • | • | | • |
| Brownfields Remediation | | | | | | | | | | | | | • | • | • | • | | • | | | • | • | | • |

**TABLE 4.3-1**
**UPPER SANTA CLARA RIVER REGION WATER MANAGEMENT STRATEGIES AND CALIFORNIA WATER PLAN RESOURCE MANAGEMENT STRATEGIES (CONT.)**

| | California Water Plan Strategies | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agricultural Water Use Efficiency | Urban Water Use Efficiency | Conveyance | System Reoperation | Water Transfers | Conjunctive Management and Groundwater Storage | Desalination | Precipitation Enhancement | Recycled Municipal Water | Surface Storage – CALFED | Surface Storage – Regional/Local | Drinking Water Treatment and Distribution | GW/Aquifer Remediation | Matching Water Quality to Water Use | Pollution Prevention | Urban Runoff Management | Agricultural Lands Stewardship | Economic Incentives | Ecosystem Restoration | Floodplain Management | Recharge Areas Protection | Urban Land Use Management | Water-Dependent Recreation | Watershed Management |
| Wellhead Recharge and Protection | | | | | | | | | | | | | • | | | | | | | | • | | | |
| Emerging Contaminant Problems - Monitoring and Management | | | | | | | | | • | | | • | • | • | • | • | | | | | | | | |
| Control and/or Enforce Prohibitions on Illegal Discharge of Controlled or Toxic Substances | | | | | | | | | | | | | | | • | • | | | | | | | | |
| Leaking Underground Storage Tank Remediation | | | | | | • | | | | | | | • | | • | | | | | | | | | |
| Outreach and Education | | | | | | | | | | | | | | | • | | | | | | | | | |
| Biological Treatment of Water (e.g., Treatment Via Wetlands) | | | | | | | | | | | | | | | | | | | • | • | | | | |
| Improve Riparian Habitat | | | | | | | | | | | | | | | | | | | • | | | | | |
| **PRACTICE RESOURCE STEWARDSHIP** | | | | | | | | | | | | | | | | | | | | | | | | |
| Levee Construction | | | | | | | | | | | | | | | | | | | | • | | | | |
| Channel Improvement Projects | | | | | | | | | | | | | | | | | | | | • | | | | |
| Detention Basins | | | | | | | | | | | | | | | | | | | | • | | | | |
| Debris Basins | | | | | | | | | | | | | | | | | | | | • | | | | |
| Ongoing Facility Maintenance | | | | | | | | | | | | | | | | | | | | • | | | | |
| Removal of Hazards or Facilities from Floodways | | | | | | | | | | | | | | | | | | | | • | | | | |
| Storm Monitoring and Modeling - Flows, Water Quality | | | | | | | | | | | | | | | | | | | | • | | | | |
| Coordinated Hydrogeomorphic Modeling | | | | | | | | | | | | | | | | | | | • | • | • | | | |
| Incentives for Landowners - Public/Private Partnerships | | | | | | | | | | | | | | | | | | • | • | • | | | | • |
| Evaluate Process for Reconstruction Following Emergencies (Floods, Landslides) | | | | | | | | | | | | | | | | | | | | | | | | |
| Public Information Programs Regarding Flood Prevention | | | | | | | | | | | | | | | | | | | | • | | | | |
| Land Acquisition for Watercourse Expansion/Flood Management | | | | | | | | | | | | | | | | | | • | | • | | | | |
| Protect And Enhance Native Ecosystem Diversity | | | | | | | | | | | | | | | | | | | • | | | | | |
| Control, Remove, and Prevent Invasive Species | | | | | | | | | | | | | | | | | | | • | | | | | |
| Protect Existing Habitats from Degradation | | | | | | | | | | | | | | | | | | | • | | | | | |
| Urban Stream Restoration and Revitalization | | | | | | | | | | | | | | | | | | | • | • | | • | | |
| Land Acquisition and/or Easements for Protection and Restoration of Habitat Areas Landscape Linkages/Wildlife Movement | | | | | | | | | | | | | | | | | | • | • | | | | | |

**TABLE 4.3-1**
**UPPER SANTA CLARA RIVER REGION WATER MANAGEMENT STRATEGIES AND CALIFORNIA WATER PLAN RESOURCE MANAGEMENT STRATEGIES (CONT.)**

| | California Water Plan Strategies | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Agricultural Water Use Efficiency | Urban Water Use Efficiency | Conveyance | System Reoperation | Water Transfers | Conjunctive Management and Groundwater Storage | Desalination | Precipitation Enhancement | Recycled Municipal Water | Surface Storage – CALFED | Surface Storage – Regional/Local | Drinking Water Treatment and Distribution | GW/Aquifer Remediation | Matching Water Quality to Water Use | Pollution Prevention | Urban Runoff Management | Agricultural Lands Stewardship | Economic Incentives | Ecosystem Restoration | Floodplain Management | Recharge Areas Protection | Urban Land Use Management | Water-Dependent Recreation | Watershed Management |
| Protect and Restore Fish and Wildlife Migration Corridors and Landscape Linkages; Where Necessary Create Or Modify Structures to Facilitate Fish and Wildlife Movement, such as Fish Ladders, Road Undercrossings, etc. | | | | | | | | | | | | | | | | | | | • | | | | | |
| Restore Natural Hydrograph and Sediment Transport in Local Watercourses | | | | | | | | | | | | | | | | | | | • | | | | | |
| Mitigation Banking | | | | | | | | | | | | | | | | | | | • | | | | | |
| Integrated Watershed GIS "Spatial Database" | | | | | | | | | | | | | | | | | | | | | | | | • |
| Identify and Collect Biological Resources Data for Comprehensive Database: 1) Ecosystem Function Analysis 2) Water Quantity and Quality Needs of Fish and Wildlife | | | | | | | | | | | | | | | | | | | • | | | | | • |
| Provide for Long-Term Stewardship of Natural Resources, Especially Public Land: Staff, Funding, Organizational Structure (District or Conservancy) Monitoring and Enforcement | | | | | | | | | | | | | | | | | | | • | | | | | • |
| Conservation Plans: 1) Evaluate Multiple Scale Habitat Needs of Aquatic and Riparian Dependent Species | | | | | | | | | | | | | | | | | | | • | | | | | • |
| Active and Passive Recreation Areas Related to Water Resources | | | | | | | | | | | | | | | | | | | • | | | | • | |
| Enhance Appropriate Public Access | | | | | | | | | | | | | | | | | | | • | • | • | • | • | • |
| Updates and Modifications to General Plan Policies | | | | | | | | | | | | | | | | | • | | • | | | • | | |
| Watercourse Set-Back Ordinances or Policies | | | | | | | | | | | | | | | | | | | • | | | | | • |
| Riparian Corridor Buffers | | | | | | | | | | | | | | | | | | | • | | | | | |
| Floodplain Development Restrictions | | | | | | | | | | | | | | | | | | | | • | | | | |
| Sensitive Biological Areas Overlay Zones | | | | | | | | | | | | | | | | | | | • | | | | | |
| Flood Hazard Mapping | | | | | | | | | | | | | | | | | | | | • | | | | |
| Require Evaluation of Footprint Impacts in Newly Developing Areas | | | | | | | | | | | | | | | | | | | • | | | | | |
| Create Incentives (Tax Credits) for Landowners to Protect and Restore Habitats and Ecosystems on Their Property | | | | | | | | | | | | | | | | | | • | • | | | | | |
| Agricultural Lands Stewardship | | | | | | | | | | | | | | | | | • | | | | | | | |
| Post-Fire Rehabilitation | | | | | | | | | | | | | | | • | • | | | | | | | | |
| Landscape Guidelines for Fuel Modification/Defensible Space in New Development | | | | | | | | | | | | | | | | | | | | | | • | | |
| Urban Landscape Management Planning | | | | | | | | | | | | | | | | | | | | | | • | | |

# Section 5: Project Priorities and Implementation

## 5.1 Project Prioritization Process

The Upper Santa Clara River IRWMP will be implemented through specific studies and actions. As described in Section 4.4, in order to identify potential projects that facilitate IRWMP implementation (e.g., "Candidate Projects"), the RWMG held an open "call for projects." Stakeholders and others were encouraged to submit projects during multiple stakeholder meetings, in email correspondence solicitations, and via the project website. To implement water management strategies identified in the IRWMP, Stakeholders identified nearly 40 separate projects. The resulting Candidate Projects are contained in Appendix C.

**CANDIDATE PROJECTS**

A large number of projects were submitted by Stakeholders. During the Stakeholder meeting process, several project proponents observed commonalties in their projects and decided to form partnerships and combine their individual projects into a single enhanced project. As a result, there are 39 Candidate Projects presented in this IRWMP.

The Stakeholders developed a process to prioritize projects, with the intent that highest-ranked projects be put forth in applications for funding. The prioritization of projects is based upon a detailed screening process. The process is three-fold: Initial Project Sorting; Project Development and Refinement; and Secondary Project Evaluation (please see Figure 5.1-1 for a graphical overview of the process). However, all projects submitted will be maintained on the Candidate Project list, and the list will be updated on a regular basis as new projects are submitted and as projects are developed through time and re-prioritized.

### 5.1.1 Initial Project Sorting/Step 1 Prioritization

At the fifth stakeholder meeting (16 August 2007), the prioritization process was introduced to the RWMG and larger stakeholder group. The process was designed to meet two separate but related objectives: (1) to enhance and develop projects in order to meet regional objectives; and (2) to select the best suite of projects in order to maximize funding opportunities for the Region. Stakeholders expressed a desire to have projects ranked according to how well they met the objectives agreed upon for the Region. Based on this input the RWMG did an initial sorting of Candidate Projects. Each project was assigned points; one point was awarded for each objective that the project would meet (i.e., reduce water demand, improve operational efficiency, increase water supply, improve water quality, and promote resource stewardship). Candidate Projects were sorted so that those projects that met the most objectives appeared at the beginning of the project list. Following this exercise, Candidate Projects were further parsed and sorted based on how well they met a secondary set of criteria:

- Lack of conflict with other objectives
- Lack of downstream impacts
- Compatibility with other planning documents for the Region

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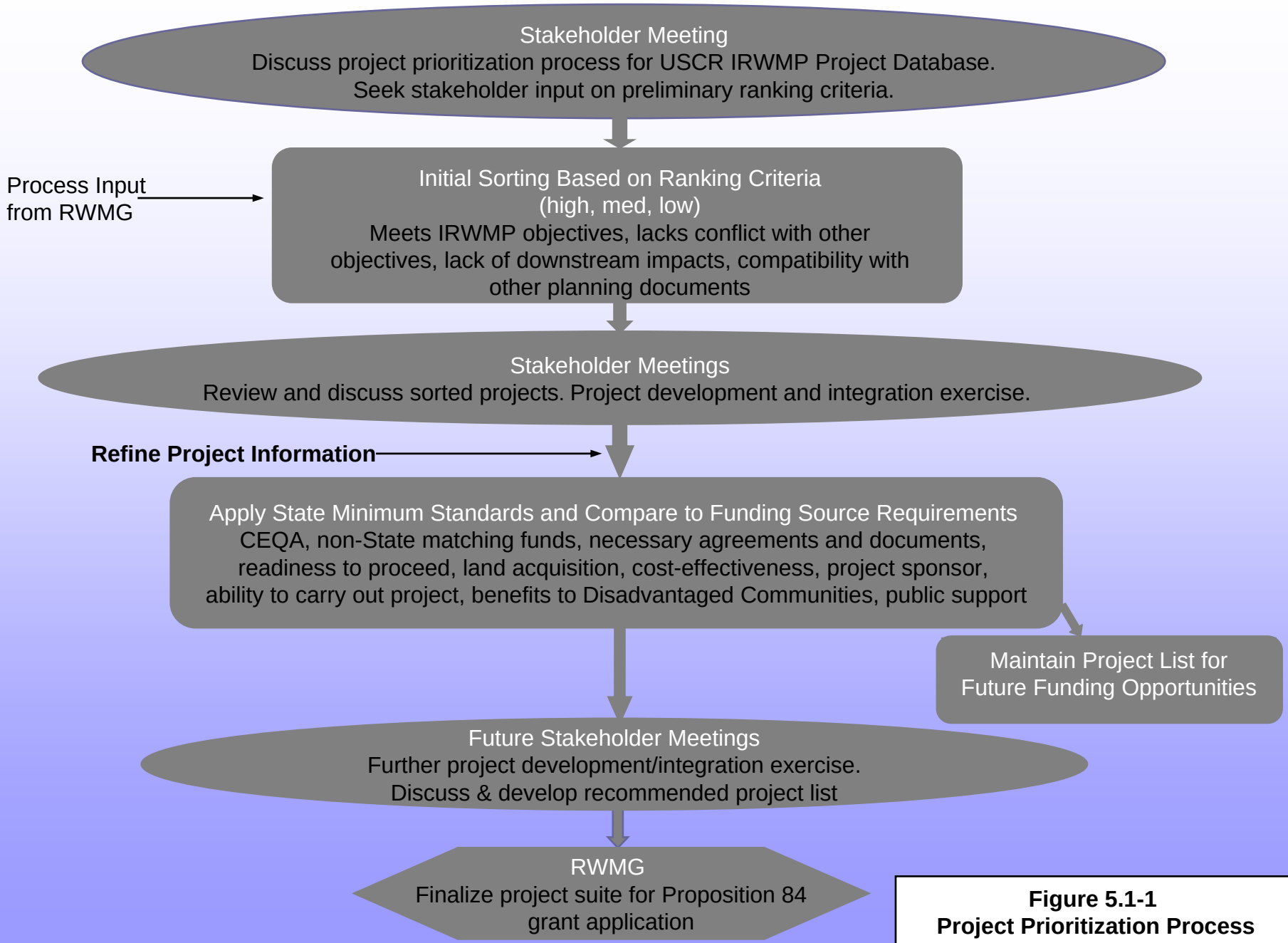



**Figure 5.1-1**
**Project Prioritization Process**

Using these primary and secondary criteria the RWMG sorted the Candidate Projects into "high," "medium," and "low" categories. During the fifth (August 16, 2007), sixth (September 27, 2007), and seventh (November 13, 2007) Stakeholder meetings, Stakeholders provided input on the sorting process, the criteria used for sorting, and whether or not a given candidate project met a given criteria. The Stakeholders also discussed means to integrate particular Candidate Projects (see Section 5.1.3). The initial sorting process was completed and was presented at the eighth Stakeholder Meeting (February 19, 2008). The results of this initial sorting are displayed in Table 5.1-1: 12 projects are sorted as "high priority," 9 projects as "medium priority," and 10 projects as "low priority." Due to its length, Table 5.1-1 appears at the end of this section.

In addition, several projects were categorized as "Pending Further Development." These projects have been put into this category for a variety of reasons:

- Lack of sufficient project information to be evaluated
- Lack of appropriate sponsor
- Received too late in the process to be fully evaluated

It should be noted that Table 5.1-1 represents a "snapshot" particular to this first edition of the IRWMP. Over time, as particular projects become more refined, it is likely they could be re-categorized (e.g., moved from the "low" category to the "high" category). In addition, over time, new Candidate Projects will be added and ranked according to the established criteria. The list of Candidate Projects is intended to continually grow and change as projects are completed and new project concepts are added.

### 5.1.2 Refinement/Step 2 Prioritization

It will be necessary to "pare down" the list of Candidate Projects shown in Table 5.1-1 and develop a list of projects specific to IRWMP implementation and funding applications. This second step in the prioritization process will first be applied to projects rated "high" in the project sorting exercise (see Table 5.1-1). If no "high" projects remain or are ready to be implemented, then projects rated "medium" will be taken through the second step. This step will be based on how well Candidate Projects meet the following State Minimum Standards and readiness to proceed criteria:

- CEQA and Other Permitting. Projects that have the potential to cause a change in the physical in environment are required to comply with the California Environmental Quality Act (CEQA). Activities receiving State funding must be in compliance with CEQA. The second step in project prioritization will consider whether a project has completed or will complete environmental documentation and permitting in the near term.
- Necessary Planning Documents. Projects seeking Proposition 50, Proposition 84, and other State grant funding must demonstrate compliance with the Urban Water Management Planning Act (CWC § 10610 et seq). Effective January 1, 2009, consistent with Assembly Bill 1420, any urban water supplier receiving a water management grant or loan must also demonstrate implementation of the water demand management measures described in their urban water management plan. Further, applicants with projects that have potential groundwater impacts must also demonstrate that either: they have prepared and implemented a Groundwater Management Plan in compliance with

CWC § 10753.7, or they are participating in a process that meets the requirements of CWC §10753.7(a).

- Sponsor Authority and Funding Match. Projects must be sponsored by an entity with the authority to implement the project, the ability to maintain the project, and the ability to provide local funding for the project.

- Readiness to Proceed. Project feasibility should be determined and the project concept should be advanced enough to estimate both schedule and costs.

Because the *Integrated Regional Water Management Plan Guidelines* (Guidelines) are undergoing revision following the passage of Proposition 84, there is uncertainty about the specific State requirements that should be considered during project refinement, if Proposition 84 funding is to be pursued. The list of criteria described above may be revised once the Proposition 84 Guidelines are available, or when guidelines for other funding sources become available. The RWMG has decided that project refinement at this time will not result in useful information as data developed in the present will need to be updated to reflect revised Guidelines. However, in anticipation of project refinement, Stakeholders were asked to complete project information "long forms" in which as much detailed project information as available was solicited, including such information as the projected benefit/cost effectiveness of each project. These long forms, updated as necessary, will provide the basis for completing this second step in the prioritization process. Completed long-forms for Candidate Projects are provided in Appendix E.

### 5.1.3 Selected Plan Projects

As described earlier, due to uncertainty about IRWMP Guidelines and pending legislation, the RWMG has decided to solicit project ideas and sort these ideas based on consistency with regional objectives. It is the intent of the RWMG to adopt this IRWMP with the list of projects described in Table 5.1-1 and detailed in Appendices C and E. The RWMG will solicit DWR's input on this Draft IRWMP document. The IRWMP will then be updated based on State guidance (as well as other comments received during the public review of the Draft IRWMP). After guidelines for Proposition 84 and other funding sources become available, and based on the requirements of any enacted legislation, the prioritization process will be finalized and a suite of projects (i.e., "Plan Projects") selected for inclusion in applications to various funding sources (or for local implementation).

It is the intent of the RWMG and Stakeholders that the database of Candidate Projects will be regularly updated, with new projects added as time goes on. During regular updates of the IRWMP, all Candidate Projects will be evaluated and prioritized and a new list of Plan Projects generated.

Following selection of Plan Projects the document will be revised as necessary to:

- Describe linkages and the interdependence of Plan Projects

- Identify any coordination of Plan Projects with State and Federal agencies

- Describe the relationship of Plan Projects to local planning, IRWMP program preferences, and *California Water Plan* Strategies

## 5.2 Integration of Water Management Strategies

CWC § 79501 states the following:

> *The people of California find and declare that it is necessary and in the public interest to do all of the following…*
>
> *Establish and facilitate integrated regional water management systems and procedures to meet increasing water demands due to significant population growth that is straining local infrastructure and water supplies.*
>
> *Improve practices within watersheds to improve water quality, reduce pollution, capture additional storm water runoff, protect and manage groundwater better, and increase water use efficiency.*
>
> *Protect urban communities from drought, increase supplies of clean drinking water, reduce dependence on imported water, reduce pollution of rivers, lakes, streams, and coastal waters, and provide habitat for fish and wildlife.*

Integrated regional water management planning meets this intent by encouraging broad evaluation of watershed related issues as well as identification of projects to address these needs. Integrated regional water management planning solicits the input and expertise of various groups, including water agencies, flood control agencies, local planning entities, conservancies, sanitation districts, business organizations, open space and recreation interests, and habitat preservation interests. One of the benefits of this planning process is that it brings together this broad array of groups into a forum to discuss and better understand shared needs and opportunities. This format assures that a full range of issues and needs are considered. It also ensures that an extensive range of expertise is used to evaluate projects and identify means to improve and integrate projects.

**BENEFITS OF PLAN IMPLEMENTATION**

- Regional planning and communication
- Creation of partnerships
- Efficiency (shared data and know-how)
- Consideration of all watershed components
- Sharing of potential impacts and benefits

Examples of regional integration took place in the Upper Santa Clara River IRWMP process. During the sixth and seventh stakeholder meetings, all entities that submitted Candidate Projects for inclusion in the IRWMP were asked to give presentations on their proposals. These presentations and subsequent discussions allowed the group to become familiar with the various Candidate Projects. This information assisted with project sorting, but also led to suggestions for project improvement and led to integration of several Candidate Projects. For example, as part of the initial "Call for Projects," three separate agencies proposed projects that focused on removal of the non-native plant *Arundo donax*. Three agencies proposed projects involving groundwater recharge using reclaimed water. Two entities proposed treatment of

groundwater for iron and manganese. Following Stakeholder discussions on these various proposals, entities decided to join and collaborate rather than duplicate effort and are now jointly sponsoring a single, more regional project for Arundo removal, a single project for reclaimed water recharge, and a single project related to iron and manganese treatment.

## 5.3 Impacts and Benefits of Plan Implementation

### 5.3.1 Benefits of Plan Implementation

The primary benefit of the Upper Santa Clara River IRWMP is development of a framework supportive of collaborative regional planning. This IRWMP allows for Stakeholders in the community to create a vision for watershed planning in the Region, and identify appropriate means to achieve this vision. Creation of the IRWMP has facilitated partnerships between local, State, and Federal entities. For example several Candidate Projects are being jointly sponsored by multiple local entities.

The IRWMP process fosters coordination, collaboration and communication among entities in the Region and has resulted in greater efficiencies (e.g., efforts are not duplicated, information is shared), will enhance public services, and will facilitate public support for watershed projects. As part of preparing this IRWMP, the regional agencies have provided input as to their ongoing research and data collection projects. Knowledge of these research and data collection projects assists other agencies from duplicating efforts. Knowledge of each other's efforts has allowed Stakeholders to better coordinate data (developing consistent formats and consistent means of examining data). This "pooled" data results in a larger and more significant data set. For example, CLWA, SCWD, LACWWD No. 36, NCWD, and VWC annually coordinate preparation of a summary of water supplies and demands. In addition, during IRWMP preparation many of the agencies and non-profit groups shared the experience gained in implementing past projects – passing their know-how to others. For example, the City of Santa Clarita provided details related to their experience with Arundo removal, including information on successful removal techniques and the tradeoffs with various approaches. VWC provided information on their experience with water softening technologies. Efficiencies have also been achieved by cooperating on regional efforts rather than separate localized efforts.

A regional planning effort ensures that all potential components of watershed planning are considered rather than one particular area or project type dominating. Regional planning improves the likelihood that benefits and impacts are shared instead of one group or area reaping the benefits while another bears the impacts. Regional planning efforts also increase the likelihood that projects that implement one particular objective (e.g., water supply) are considerate of other objectives (e.g., flood control or habitat preservation). As part of project integration, projects can be refined so that they achieve multiple objectives.

The IRWMP will allow otherwise separate agencies to speak as a region and to improve policies, regulations and laws related to water demand, water supply, water quality, operational efficiency, and resource stewardship.

The range of projects identified by this IRWMP meet all objectives identified by the Stakeholders:

- Implement technological, legislative and behavioral changes that will reduce user demands for water.

- Maximize water system operational flexibility and efficiency, including energy efficiency.

- Understand future regional demands and obtain necessary water supply sources.

- Supply drinking water with appropriate quality; improve groundwater quality; and attain water quality standards.

- Promote resource stewardship:
  - Preserve and improve ecosystem health
  - Improve flood management
  - Preserve and enhance water-dependent recreation

Full implementation of this IRWMP will result in multiple benefits associated with these objectives. In addition, the IRWMP will provide for the following specific benefits through implementation of these projects:

- Water Quality Improvement Projects. Candidate Projects include efforts to reduce use of water softeners in the Region, treatment of naturally occurring manganese and iron, and development of a process to avoid disinfection by-products. The primary benefit from implementing these water quality projects would be the reduced potential for human exposure to potentially harmful substances. These projects would also improve the efficiency of both water and wastewater treatment processes. Besides improving drinking water, these projects could potentially benefit other types of water users, such as agricultural water users and water dependent wildlife habitat.

- Demand Management Projects. Candidate Projects include preparation of a Valley-wide conservation strategic plan and technical support to improve water use efficiency in large landscape areas. More efficient water use will result in less demand on imported water supplies, less energy usage for treatment and delivery of water, and reduced demand for new or expanded water supply infrastructure. In addition, improved outdoor irrigation reduces the flows of poor quality urban run-off.

*Preservation of Ecosystem Health is an IRWMP Objective*

- Resource Stewardship Projects. Candidate Projects include Arundo removal programs, floodplain acquisition, preparation of drainage plans, and trash removal programs. Projects that remove trash and non-native species, such as Arundo, improve overall habitat quality. These projects also reduce flooding by removing obstructions in the river that can result in significant erosion and damage to public facilities. Arundo removal also increases water supply as this plant utilizes large

quantities of surface and groundwater. Floodplain acquisition would serve to protect river habitat and reduce the potential for having developed properties in a flood risk area.

- Water Supply Projects. The majority of Candidate Projects submitted by Stakeholders relate to water supply, particularly storm water capture, groundwater recharge, and development of recycled water supplies. Storm water capture and subsequent groundwater recharge provides for increased use of local supplies rather than imported water. These projects assist in maintaining the long-term sustainability of the groundwater supply. Depending on project specifics, these projects can also serve to decrease peak flood flows and provide opportunities for habitat improvement and restoration. Recycled water supplies, likewise, decrease demand for imported water. Recycled water can off set potable water demand, recharge groundwater, and be used to create and restore wetland areas.
- Operational Efficiency Projects. Several projects are proposed to improve water infrastructure, including projects to relocate a sewer out of the Santa Clara River channel, consolidation of mutual water companies, and projects to replace outdated and poorly functioning infrastructure. These projects have benefits related to reduced maintenance costs and decreased system water loss. In the case of the sewer relocation project, a primary water quality benefit would be the reduced risk of damage to the sewer and potential for a sewage spill. Consolidation of mutual water companies would result in economies of scale and would ensure each connection is metered (encouraging water conservation).

### 5.3.2 Plan Beneficiaries

The potential beneficiaries of the Upper Santa Clara River IRWMP are residents of the Region, water agencies, local, State and Federal agencies, businesses, wildlife and associated habitats, and others within the jurisdictions served by IRWMP projects. These beneficiaries are represented by members of the RWMG and the larger Stakeholder group. Specific IRWMP benefits and beneficiaries will be identified after selection of Plan Projects (see Section 5.2).

### 5.3.3 Interregional Benefits

The Region is bounded by the San Gabriel Mountains to the south and southeast, the Santa Susana Mountains to the southwest, and the Liebre Mountains and Transverse Ranges to the northeast and northwest. Therefore, projects implemented in the Region are unlikely to directly affect IRWMP efforts in the neighboring Antelope Valley or greater Los Angeles areas. However, the Region does have a hydrologic connection to the portion of the Santa Clara River in Ventura County. It is likely that projects to enhance and protect the watershed may have downstream benefits. Further, as part of project sorting (see Section 5.1.1), points are awarded to those Candidate Projects that lack negative downstream impacts.

## 5.4 Impacts of Plan Implementation

Negative impacts that may be associated with the Plan Projects include (1) short-term, site-specific impacts related to site grading and construction, and (2) long-term impacts associated with project operation. For the purposes of this IRWMP, impacts are discussed at a screening level below.

Project-specific and/or programmatic environmental compliance processes (consistent with CEQA and, if applicable, the National Environmental Policy Act) will evaluate the significance of the impacts. Under CEQA, impacts determined to be significant must be mitigated to a level of non-significance (unless the lead agency makes findings of overriding consideration). The IRWMP itself does not lead to the implementation of any specific project. It has been determined that the IRWMP itself is exempt from CEQA. The following provisions of the State CEQA Guidelines apply:

- Statutory Exemption (15262 for Feasibility and Planning Studies)
- Categorical Exemption (15306-Information Collection)

CEQA review of specific projects will provide an evaluation of impacts in much greater detail than discussed below:

- Aesthetics. Projects that include construction activities and new infrastructure have the potential to affect aesthetics. However, it is likely that projects would be constructed in areas that are already disturbed, or would include mitigation measures that would return disturbed areas to their pre-construction conditions.
- Air Quality. Short-term air quality impacts could result from construction of Plan Projects. However, through the CEQA process potential air emissions would be minimized through application of BMPs identified by the air quality management district or mitigation measures.
- Biological Resources. Short-term biological impacts could result from construction activities as well as non-native plant removal. Most of these negative effects would be avoided or minimized through mitigation efforts related to CEQA. Additionally, the IRWMP includes preservation of ecosystem health as one of its objectives. Thus, if implemented, Plan Projects could result in overall benefits to biological resources.
- Cultural Resources. Impacts to cultural resources (historical, archeological, and paleontological resources) could result from construction activities from Plan Projects. As part of the CEQA process it will be necessary to develop mitigation measures to avoid or minimize these potential impacts.
- Geology and Soils. Plan Projects with the potential to impact geologic resources would be required to undergo geological feasibility studies which would specify the appropriate engineering standards the contractor would have to comply with during construction. Compliance with these standards would mitigate project site geological and soil impacts.
- Hydrology and Water Quality. It is anticipated that impacts to hydrology and water quality would be generally beneficial because in the long-term Plan Projects are intended to improve water supply reliability and water quality. For short-term erosion or sedimentation, project-specific BMPs would be identified as part of the NPDES permitting process.

  A number of Plan Projects proposed in this IRWMP are groundwater recharge projects using either storm water or recycled water. Because recycled water generally contains

more salts than other water sources in the Region, recharge with recycled water could increase the salinity of the local groundwater. There is also concern that groundwater recharge with storm water and recycled water will result in decreased flow in the Santa Clara River. These issues merit particular analysis in project specific CEQA documentation.

- Land Use and Planning. The Plan Projects were evaluated as to their compatibility with other planning documents for the Region, including local and regional General Plans. Therefore, no significant land use changes or inconsistencies with policies are anticipated.

- Noise. Noise impacts could result from construction activities from some of the proposed projects. However, through the CEQA process most of these activities would be minimized through mitigation efforts and no long-term noise impacts are expected.

- Population and Housing. No adverse impacts to population and housing are anticipated. IRWMP implementation would help to meet the water demands of the existing and anticipated future population.

- Public Services and Utilities. Many of the Candidate Projects are intended to enhance water supply, water quality, and improve storm water management and flood control. These types of projects would benefit the utilities and service systems in the Region.

- Recreation. One of the objectives of the IRWMP is to preserve and enhance water-dependent recreation. Therefore, impacts to recreation from IRWMP implementation are likely to be beneficial.

- Transportation and Circulation. Transportation and circulation could be temporarily impacted during construction of some of the Plan Projects. Construction can temporarily increase traffic congestion due to transportation of equipment and trips by workers. Construction of projects located near roadways can result in temporary lane closures and detours. However, through the CEQA process most of these activities would be avoided or minimized and no long-term transportation and circulation impacts are expected.

## 5.5 Institutional Structure for Plan Implementation

While the structure and approach used to-date have been successful in creating the IRWMP, the RWMG discussed whether the MOU that formed the RWMG and facilitated broad agreement approach would work well to implement and update the IRWMP after it is adopted. Several potential options to lead the collaboration with the Stakeholder group, and help implement the IRWMP were discussed within the RWMG.

A Governance Subcommittee was formed to explore options and prepare a recommendation for how to establish an effective governance structure to implement the IRWMP. The Subcommittee was comprised initially of a subset of the RWMG group. The Subcommittee identified and prioritized objectives for a new governance structure, as well as recommended roles within the new structure, which are discussed below.

The Governance Subcommittee first identified the purposes that a governance structure would be designed to fulfill for the benefit of IRWMP implementation, and subsequently identified which group (e.g., RWMG, Stakeholders, etc.) would best govern each of those efforts:

- Provide focused leadership for implementing and updating the IRWMP (RWMG in lead, with input from Stakeholders).
- Track and report progress in meeting IRWMP goals (RWMG and Stakeholders).
- Identify potential sources of outside funding and assist local entities to compete for those funds (RWMG, Stakeholders, and other sources of information).
- Provide leadership to focus cooperation for broad regional planning and implementation efforts such as (RWMG with input from Stakeholders):
  - regional water recycling
  - regional water quality preservation
  - regional water conservation programs
  - regional data and information management
- Select a contracting agency for any State or Federal grant funds obtained for implementation of the IRWMP (RWMG to select Grantee from among its members in accordance with applicable grant requirements, once the RWMG is formalized).

The Governance Subcommittee next identified the following factors that must be provided within a new governance structure to successfully accomplish these purposes and serve the recommended roles:

- Staff dedicated to provide leadership in the following areas:
  - Initiate actions
  - Collaborate with others
  - Call public/stakeholder meetings, set agendas, and lead meetings
  - Prepare background documents for IRWMP updates
  - Identify, select, and apply for appropriate funding opportunities
  - Oversee update of the IRWMP
- Capability to gather, compile and manage data and information.
- Ability to execute and manage contracts.
- Ability to receive and process financial transactions and meet Generally Accepted Accounting Principles.
- Expertise to make a valuable contribution of services to IRWMP preparation.
- Ability to obtain funds to contribute to IRWMP preparation.

- Ability and willingness to serve as a point of contact for IRWMP related information.
- Willingness to support process facilitation and outreach.

### 5.5.1 Roles and Responsibilities of Each Group Involved

The roles and responsibilities of the various participants envisioned to carry out the broad purposes of the governance structure are described below.

#### 5.5.1.1 Stakeholder Group Roles and Responsibilities

The Stakeholder group is an integral group of participants in the IRWMP process. This group includes members of the RWMG as well as an extensive mix of other municipal and regulatory, environmental, private, and land use planning agencies that represent all areas of the Upper Santa Clara River Region. The Stakeholder group has met periodically since February 2007 to allow for discussion of issues facing the Region and to develop the IRWMP. The purpose of the Stakeholder group is to help identify regional objectives, identify strategies to meet regional objectives, as well as to provide advice and feedback to assist with the development or updating of the IRWMP. The Stakeholder meetings are governed by a set of agreed-upon ground rules and operating procedures that fostered full participation, as identified in Sections 1.3.3.1 and 1.3.3.2 of this IRWMP.

Stakeholder meetings are led by a professional facilitator with no direct association or stake in the outcome of any actions considered within the IRWMP. Materials for the IRWMP discussed in each meeting have been developed by a consultant team in cooperation with RWMG members and Stakeholders and made available for review and comment by the Stakeholders. The following is a list of roles and responsibilities for the Stakeholder group.

1. Attend and participate in stakeholder meetings.
2. Be an agency/organization with an interest in a watershed related issue.
3. Offer suggestions for meeting IRWMP objectives.
4. Propose and/or sponsor projects.
5. Provide input on the project prioritization framework development.
6. Make recommendations regarding project ranking within the process outlined in the project prioritization framework.
7. Review and comment on all versions of the IRWMP.
8. Represent each agency/organization having a single vote at a Stakeholder meeting.
9. Be able to show support for the IRWMP (e.g., adopt it [if the Stakeholder meets the requirements for adoption as set forth in the funding guidelines], sign a resolution in support of it, or submit a letter of support to the RWMG for inclusion in the adopted IRWMP).

#### 5.5.1.2 Participating Stakeholders

The Inaugural RWMG identified a universe of potential stakeholders by listing any agency, group or party that had a local interest in water. Contacts for these candidate stakeholders were determined and written invitations to the first Stakeholder meeting were sent. Subsequent letters were sent to any entity that expressed interest or that may have been missed in the first

mailing. After that time, notifications by e-mail and by website were the methods used to keep the Stakeholder group informed of meetings and updates. The list of invited Stakeholders is on the original sign-in form (Appendix B). The list has been revised to add newcomers and to delete those that chose not to participate. Participating Stakeholders included:

- Agua Dulce Town Council
- Agua Dulce/Acton Country Journal
- Association of Water Agencies of Ventura County
- Atkins Environmental
- Building Industry Association
- CDFG
- California Department of Transportation (Caltrans)
- DWR
- Castaic Area Town Council
- CLWA
- City of Santa Clarita
- County of Ventura
- Lake Elizabeth Mutual Water Company
- Los Angeles County Department of Parks and Recreation
- LACDPW
- Los Angeles County Department of Regional Planning
- LACFCD
- Los Angeles County Supervisor's Office
- Los Angeles RWQCB
- Mountains Recreation and Conservation Authority
- NRCS
- The Nature Conservancy
- NCWD
- Newhall Land and Farming Company
- RMC Water and Environment
- Santa Clarita Organization for Planning the Environment
- Santa Clarita Valley Environmental Coalition
- SCVSD
- Santa Clarita Valley Well Owners Association
- SCWD
- Sierra Pelona Mutual Water Company
- Town Council of Acton
- Town Council of West Ranch
- US ACE
- US FWS
- USFS- Angeles National Forest
- University of California Cooperative Extension
- VWC
- Valley Crest Tree Company
- VCRCD

#### 5.5.1.3 Local Project Sponsors' Roles and Responsibilities

Local Project Sponsors are those IRWMP Stakeholder agencies or entities having Candidate Projects that are included in the IRWMP database. Information on each of the Candidate Projects and a summary list of all Candidate Projects is maintained at www.scrwaterplan.org

("Projects" tab). The database is intended to be a comprehensive list of projects that, when completed, will aid in advancing the IRWMP's regional objectives. It is envisioned that the Local Project Sponsors will have the following roles and responsibilities:

1. Provide project-specific information for the database that may aid in advancing the IRWMP's regional objectives.
2. Seek opportunities to integrate, where possible and practical, Candidate Projects in the database in order to most-efficiently achieve the regional objectives. This process may be facilitated at Stakeholder meetings, but Local Project Sponsors are also encouraged to seek these opportunities outside of that forum.
3. Provide updated project-specific information for the database as necessary to reflect major project milestones (e.g., CEQA completion, 100% design, construction underway, construction complete, and project completion). Although this particular role is not a requirement, it is in the best interest of the Local Project Sponsors to keep the database current, so the most updated information is used to evaluate projects using the project prioritization framework as outside funding sources become available.
4. Participate in Stakeholder meetings to educate others about the Local Project Sponsor's project(s) in the database. This happens naturally as a result of casual collaboration with other Local Project Sponsors but may also be in the form of presentations made at Stakeholder meetings.
5. Identify a point person for each project who will provide in a timely manner to the RWMG and/or consultant, requested information for projects selected for inclusion in a grant application.
6. Identify a point person for each project who will provide in a timely manner to the Grantee and/or consultant, requested information for projects selected for funding through a funding agency.
7. Comply with grant requirements, as identified by the funding agency, in order to qualify for grant funding.

### 5.5.2 Successor Regional Water Management Group

The Government Subcommittee recommends that concurrently with the adoption of the IRWMP, the RWMG begin the process to enter into a new MOU to oversee the preparation of a grant submittal package, revise the IRWMP to be consistent with any new requirements and to formalize the membership of a Successor RWMG. This Successor RWMG will perform, at a minimum, the same functions of the Inaugural RWMG for any needed IRWMP updates. The Successor RWMG would have these responsibilities for a term to be determined in the MOU.

#### 5.5.2.1 Successor Regional Water Management Group Structure, Roles, and Responsibilities

1. Total membership of the RWMG may be up to 11 entities and comprised of agencies/organizations whose primary mission is consistent with one or more of the IRWMP three main objectives (i.e., water supply, water quality, and resources stewardship).

2. The RWMG will include at least three agencies, two of which have statutory authority over water resources. Any member of the Inaugural RWMG may elect to become a founding member of the Successor RWMG.

3. RWMG membership within each of the three main regional objectives (i.e., water supply, water quality, and resources stewardship) will be re-evaluated every three years.

4. The RWMG will strive to ensure balanced representation across the IRWMP's objectives, as well as geographic diversity across the Region.

5. RWMG members will be recommended by the Stakeholder group to achieve the balance described above. The founding members of the RWMG will select additional RWMG members, for a total of up to 11 members, from a list of nominees recommended by the Stakeholders.

6. The RWMG should annually select or reaffirm a Chair and a Vice-Chair to conduct meetings.

7. In the event a clear consensus cannot be reached each RWMG member would have a single vote at RWMG meetings.

8. Successor RWMG members must have authority to enter into a legal agreement to form a RWMG (e.g., MOU, joint powers authority, or other legal document) and will seek legal counsel to prepare a formalized governance document that will provide for the IRWMP's governance and implementation of the regional objectives.

9. The RWMG members will execute a new MOU after initial adoption of the IRWMP to reflect an ongoing governance structure to implement the IRWMP.

10. Members of the RWMG would be expected to contribute either some level of financial or in-kind services towards IRWMP preparation/update and would need to allow for considerable staff time during normal working hours to work on plan preparation and to attend meetings.

11. RWMG members would commit to all of the responsibilities and activities of a Stakeholder.

12. Review and comment on all versions of the IRWMP and any grant application(s). RWMG will decide on the disposition of conflicting comments.

13. Help to determine project priorities and maintain prioritized project lists.

14. Provide oversight to the IRWMP and resolve significant issues among the Stakeholder group.

15. RWMG will direct the Chair to call Stakeholder meetings as needed and will consult on a periodic or as needed basis with the Stakeholder group.

16. Provide outreach to local entities and communities to ensure adequate input from all Stakeholders.

17. Hire consultant(s) as needed (e.g., to update IRWMP, prepare grant application, aid in performing Grantee responsibilities, provide Stakeholder facilitation services, etc.).

18. RWMG will monitor IRWMP progress toward achieving objectives and decide whether significant changes in conditions warrant update and subsequent re-adoption of the IRWMP.

20. RWMG will re-adopt the IRWMP a minimum of every five years, or within one year of one or more of the following conditions: (1) significantly changed conditions impacting objectives, (2) achievement of a regional objective requiring development of an additional regional objective, or (3) need to set a new regional objective.

21. Identify and pursue funding opportunities.

22. Select a Grantee from within the RWMG members.

23. Based on results of the project prioritization process and Stakeholder input, RWMG will make a final decision on project suite submitted for funding to any funding agencies.

24. Represent the Region's needs to the State including sustaining an open dialogue with the funding agency regarding progress on the Upper Santa Clara River IRWMP implementation and continuing to provide feedback on project progress with cooperation from the Local Project Sponsors.

#### 5.5.2.2 RWMG Chair Roles and Responsibilities

1. Call and attend RWMG, RWMG subcommittee, and Stakeholder meetings, and prepare and distribute agendas.

2. Act as primary liaison between Upper Santa Clara River IRWMP Region, RWMG, Stakeholders, other IRWMP Regions, and funding agencies.

3. Be selected or reaffirmed annually by RWMG.

#### 5.5.2.3 RWMG Vice-Chair Roles and Responsibilities

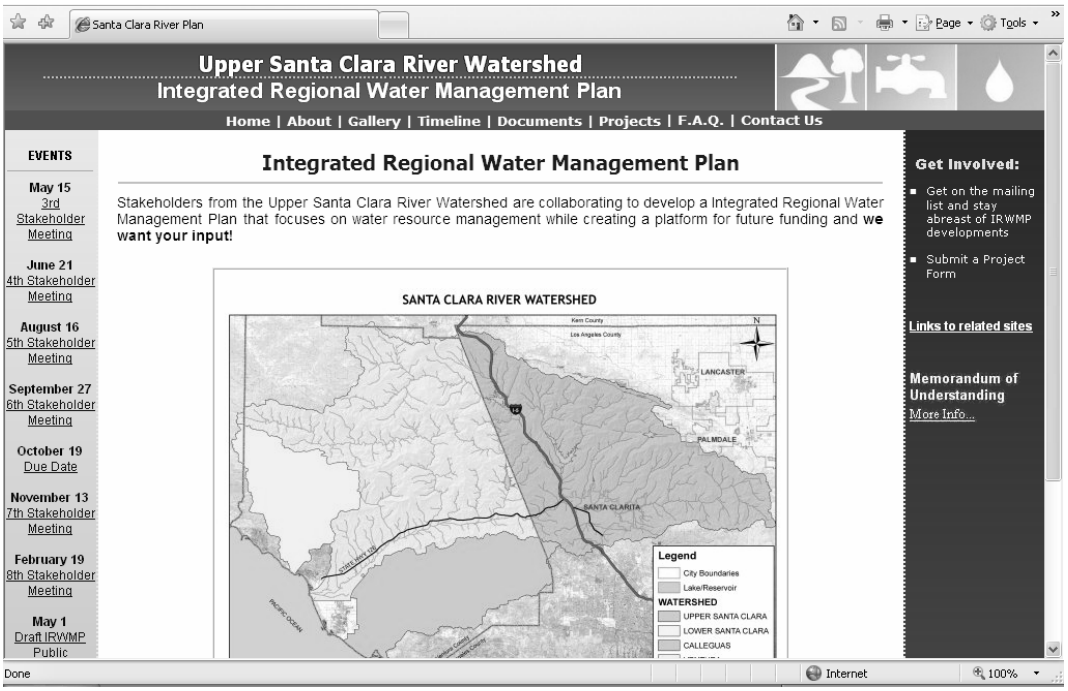
1. Assume role of Chair in the absence of the Chair.
2. Assist Chair when needed.

#### 5.5.2.4 Grantee Roles and Responsibilities

1. Apply for grant funding on behalf of the IRWMP Region.

2. Provide administration of any grant funds to help implement the IRWMP.

3. Work with Local Project Sponsors to solicit feedback on the grant administration process and help to resolve any disputes if needed.




*The IRWMP website is an important tool for facilitating communication*

4. Ensure effective communication between the funding agency and the Local Project Sponsors.

5. Maintain an open dialogue with the funding agency regarding progress on the Upper Santa Clara River IRWMP implementation and continue to provide feedback on project progress with cooperation from the Local Project Sponsors included in the successful grant application.

## 5.5.3 Future Formalized Governance Structure

### 5.5.3.1 IRWMP Term

The term of this IRWMP will be 20 years from initial adoption, with updates and subsequent re-adoption by the parties described below, occurring a minimum of every five years within that 20 year timeframe, unless one of the following events triggers re-adoption prior to the scheduled five-year interval:

- Significant change in conditions as defined by the RWMG with input from the Stakeholders.

- Achievement of an objective which necessitates setting a revised or replacement regional objective.

- The need, as determined by the RWMG with Stakeholder input, to set new regional objectives.

#### 5.5.3.2 IRWMP Adoption

The decision of which entities should appropriately adopt the IRWMP is directly related to the intent of the IRWMP's governance structure. As stated earlier, the Successor RWMG's membership is intended to ensure balanced representation across the IRWMP's three main regional objectives (i.e., water supply, water quality, and resources stewardship), as well as geographic diversity across the Region. Given this balanced representation, it is therefore appropriate that all the Successor RWMG entities with governing bodies adopt the IRWMP. Additionally, given the benefits to all Stakeholders in the Region of achieving the regional objectives set forth in this IRWMP, it is further appropriate that any stakeholder (including Local Project Sponsors) with an interest in this Region's watershed issues also be encouraged adopt the IRWMP, provide a resolution in support of the IRWMP or provide a letter in support of the IRWMP, whichever is appropriate based on the type of entity.

Because the IRWMP is envisioned to "live through time" regardless of the makeup or turnover of the RWMG, a change in RWMG membership would not trigger re-adoption of the IRWMP. Additionally, modifying or updating the IRWMP in order to qualify for funding through a funding agency would not automatically trigger re-adoption of the IRWMP.

#### 5.5.3.3 Formalized Governance Structure Document and Term

The current MOU (as described above, and shown in Attachment A) will need to be revised/replaced by the Successor RWMG in order to accomplish the items described in detail above (e.g., identifying the successor RWMG as supplemented by the recommendations of the Stakeholder group, implementing the IRWMP, managing the grant application/administration process, paying for consultant(s), making any required changes to the Plan necessary to meet grant funding guidelines, and updating the IRWMP as necessary). The term of the formalized governance document is envisioned to be five (5) years. The formalized governance document may be revised and readopted earlier than five (5) years by the agreement of parties. The document will allow for the replacement of RWMG members without triggering re-adoption of the governance document.

The RWMG membership will be reevaluated on a three (3) year cycle for each objective category (water supply, water quality, and resources stewardship) to verify that an adequate number of agencies/groups whose primary duty is related to each particular objective are represented on the RWMG. This would occur in different years for an objective so that the focus in any particular year would be on one specific objective. This would also allow for the opportunity to add new representatives or replace less active RWMG members if necessary to better meet the IRWMP objectives.

Although it is impossible to bind an as-of-yet unseated Successor RWMG, it is nevertheless the intent of this IRWMP that the Successor RWMG members seek legal counsel to prepare a formalized governance document that will provide for the IRWMP's governance and implementation of the regional objectives as described above, by incorporating the spirit and intent of this section, including as many of the details of this section as is advised.

**Table 5.1-1. Prioritization Step 1**

| Running Total of Projects | USCR IRWMP Prioritization Step 1 | | 1) Meets Regional Objectives (Primary Criteria) | | | | | | 2) Secondary Criteria | | | | Total Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Project Name | *Reduce Water Demand* | *Improve Operational Efficiency* | *Enhance Water Supply* | *Improve Water Quality* | *Promote Resource Stewardship* | **Score by: Number of Primary Criteria** | *Lacks Conflict with Other Regional Goals* | *Lacks Negative Downstream Impacts* | *Compatible with Other Planning Documents* | **Score by: Number of Secondary Criteria** | |
| | | | ***High*** | | | | | | | | | | |
| 1 | VWC-1 | Water Quality Improvement Program | • | • | • | • | • | **5** | • | • | • | **3** | **1** |
| 2 | CLWA-4 | Large Landscape Efficiency Improvement Program | • | • | • | • | | **4** | • | • | • | **3** | **2** |
| 3 | Santa Clarita-1/USFS-1/LADPW-12 (LACFCD) | Santa Clara River, San Francisquito Creek Arundo and Tamarisk Removal Project | • | | • | • | • | **4** | • | • | • | **3** | **2** |
| 4 | SCVSD-2 | Ultraviolet Treatment at the Water Reclamation Plants | • | | • | • | • | **4** | • | • | • | **3** | **2** |
| 5 | SCVSD-3 | SCVSD Self-Generating Water Softeners (SRWS) Public Outreach and Rebate Program | • | | • | • | • | **4** | • | • | • | **3** | **2** |
| 6 | SCVSD-1/ NCWD-2/ SCWD-1 | Feasibility Study for East Santa Clara River Wetlands and Groundwater Recharge Project | • | | • | • | • | **4** | • | • | • | **3** | **2** |
| 7 | Santa Clarita-3 | Discovery Park & Nature Center | • | | • | • | • | **4** | • | • | • | **3** | **2** |

| Running Total of Projects | USCR IRWMP Prioritization Step 1 | | 1) Meets Regional Objectives (Primary Criteria) | | | | | | 2) Secondary Criteria | | | | Total Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Project Name | | *Reduce Water Demand* | *Improve Operational Efficiency* | *Enhance Water Supply* | *Improve Water Quality* | *Promote Resource Stewardship* | **Score by: Number of Primary Criteria** | *Lacks Conflict with Other Regional Goals* | *Lacks Negative Downstream Impacts* | *Compatible with Other Planning Documents* | **Score by: Number of Secondary Criteria** | |
| 8 | CLWA-5 | Customer Recycled Water Incentive Program | • | • | • | | • | **4** | • | ? | • | **2** | **8** |
| 9 | LADPW-13/City of Santa Clarita | Acquisition of Land in the Flood Plain of the Upper Santa Clara River | | | • | • | • | **3** | • | • | • | **3** | **9** |
| 10 | RMC-1/City of Santa Clarita | Acquisition of river channel and major tributaries for watershed protection | | | • | • | • | **3** | • | • | • | **3** | **9** |
| 11 | NCWD-1 | Wellhead Treatment for NC 10 | | • | • | • | | **3** | • | • | • | **3** | **9** |
| 12 | CLWA-1 | Recycled Water Program, Phase II | • | | • | | • | **3** | • | ? | • | **2** | **12** |

| Running Total of Projects | USCR IRWMP Prioritization Step 1 | | 1) Meets Regional Objectives (Primary Criteria) | | | | | | 2) Secondary Criteria | | | | Total Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Project Name | | *Reduce Water Demand* | *Improve Operational Efficiency* | *Enhance Water Supply* | *Improve Water Quality* | *Promote Resource Stewardship* | **Score by: Number of Primary Criteria** | *Lacks Conflict with Other Regional Goals* | *Lacks Negative Downstream Impacts* | *Compatible with Other Planning Documents* | **Score by: Number of Secondary Criteria** | |
| ***Medium*** | | | | | | | | | | | | | |
| 13 | LADPW-10 | South Santa Clara River Rubber Dam No. 2 | | | • | • | • | **3** | | • | ? | **1** | **13** |
| 14 | LADPW-11 | South Santa Clara River Rubber Dam No. 3 | | | • | • | • | **3** | | • | ? | **1** | **13** |
| 15 | LADPW-15 | South Santa Clara River Rubber Dam No. 4 | | | • | • | • | **3** | | • | ? | **1** | **13** |
| 16 | LADPW-2 | Newhall Creek In-River Spreading Grounds | | | • | • | • | **3** | | • | ? | **1** | **13** |
| 17 | LADPW-3 | Placerita Creek Off-River Spreading Grounds | | | • | • | • | **3** | | • | ? | **1** | **13** |
| 18 | LADPW-4 | Santa Clara In-River Spreading Ground No. 1 | | | • | • | • | **3** | | • | ? | **1** | **13** |

| Running Total of Projects | USCR IRWMP Prioritization Step 1 | | 1) Meets Regional Objectives (Primary Criteria) | | | | | | 2) Secondary Criteria | | | | Total Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Project Name | | *Reduce Water Demand* | *Improve Operational Efficiency* | *Enhance Water Supply* | *Improve Water Quality* | *Promote Resource Stewardship* | **Score by: Number of Primary Criteria** | *Lacks Conflict with Other Regional Goals* | *Lacks Negative Downstream Impacts* | *Compatible with Other Planning Documents* | **Score by: Number of Secondary Criteria** | |
| 19 | LADPW-6 | Santa Clara Off-River Spreading Ground | | | • | • | • | **3** | | • | ? | **1** | **13** |
| 20 | LADPW-7 | SCR Rubber Dam No. 1 | | | • | • | • | **3** | | • | ? | **1** | **13** |
| 21 | LADPW-9 | South Santa Clara River Rubber Dam No. 1 and Spreading Ground | | | • | • | • | **3** | | • | ? | **1** | **13** |
| | | | | | | ***Low*** | | | | | | | |
| 22 | LADPW-8 | Santa Clara River Spreading Ground | | | • | • | • | **3** | | | ? | **0** | **22** |
| 23 | LADPW-1 | Lower San Francisquito Spreading Grounds | | | • | • | • | **3** | | | ? | **0** | **22** |
| 24 | LADPW-16 | Upper San Francisquito Spreading Grounds | | | • | • | • | **3** | | | ? | **0** | **22** |
| 25 | LADPW-5 | Santa Clara In-River Spreading Ground No. 2 | | | • | • | • | **3** | | | ? | **0** | **22** |
| 26 | NCWD-3 | Removal of the sewer trunk line from the Santa Clara riverbed | | | | • | • | **2** | • | • | • | **3** | **26** |

| Running Total of Projects | USCR IRWMP Prioritization Step 1 | | 1) Meets Regional Objectives (Primary Criteria) | | | | | | 2) Secondary Criteria | | | | Total Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Project Name | | *Reduce Water Demand* | *Improve Operational Efficiency* | *Enhance Water Supply* | *Improve Water Quality* | *Promote Resource Stewardship* | **Score by: Number of Primary Criteria** | *Lacks Conflict with Other Regional Goals* | *Lacks Negative Downstream Impacts* | *Compatible with Other Planning Documents* | **Score by: Number of Secondary Criteria** | |
| 27 | CLWA-2 | Electrolysis and Volatilization for Bromide Removal & DBP Reduction | | | • | • | | **2** | • | • | • | **3** | **26** |
| 28 | CLWA-3 | Feasibility of Using Electrolysis and Volatilization for Chloride Removal | | | • | • | | **2** | • | • | • | **3** | **26** |
| 29 | SCWD-2 | Consolidation of Water Mutuals | | • | | • | | **2** | • | • | • | **3** | **26** |
| 30 | LADPW-14 | Acton Master Drainage Plan | | • | | | • | **2** | | • | ? | **1** | **30** |
| 31 | VWC-2 | Provide funding to implement innovative and cost-effective water conservation programs | • | | | | | **1** | • | • | • | **3** | **31** |

| Running Total of Projects | USCR IRWMP Prioritization Step 1 | | 1) Meets Regional Objectives (Primary Criteria) | | | | | | 2) Secondary Criteria | | | | Total Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Project Name | | *Reduce Water Demand* | *Improve Operational Efficiency* | *Enhance Water Supply* | *Improve Water Quality* | *Promote Resource Stewardship* | **Score by: Number of Primary Criteria** | *Lacks Conflict with Other Regional Goals* | *Lacks Negative Downstream Impacts* | *Compatible with Other Planning Documents* | **Score by: Number of Secondary Criteria** | |
| ***Pending Further Development*** | | | | | | | | | | | | | |
| 32 | SCOPE-1 | Santa Clara River Floodplain Acquisition | | | • | • | • | **3** | • | • | • | **3** | **32** |
| 33 | CHC-1 | Santa Clarita Canyons Cleanup | | | | • | • | **2** | • | • | ? | **2** | **33** |
| 34 | SCOPE-2 (no sponsor) | Upper Santa Clara River Recycled Water Sanitation Plant Expansion | | | • | | • | **2** | • | | | **1** | **34** |
| 35 | LADPW-17 | Hasley Canyon Road Water Main, Pump Station and Turnout | | • | | | | **1** | • | • | • | **3** | **35** |
| 36 | LADPW-18 | Del Valle Road Water Main | | • | | | | **1** | • | • | • | **3** | **35** |
| 37 | LADPW-19 | Crown Valley Road 16-inch Water Main | | • | | | | **1** | • | • | • | **3** | **35** |
| 38 | LADPW-20 | New Pump Station to North Tank | | • | | | | **1** | • | • | • | **3** | **35** |
| 39 | Santa Clarita-2 | Water Quality Education Program | | | | • | | **1** | • | • | • | **3** | **35** |

| Running Total of Projects | USCR IRWMP Prioritization Step 1 | 1) Meets Regional Objectives (Primary Criteria) | | | | | | 2) Secondary Criteria | | | | Total Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Project Name** | *Reduce Water Demand* | *Improve Operational Efficiency* | *Enhance Water Supply* | *Improve Water Quality* | *Promote Resource Stewardship* | **Score by: Number of Primary Criteria** | *Lacks Conflict with Other Regional Goals* | *Lacks Negative Downstream Impacts* | *Compatible with Other Planning Documents* | **Score by: Number of Secondary Criteria** | |

Acronyms used to describe project sponsors

| | |
|---|---|
| CHC | Community Hiking Council |
| CLWA | Castaic Lake Water Agency |
| LADPW | Los Angeles Department of Public Works |
| NCWD | Newhall County Water District |
| Santa Clarita | City of Santa Clarita |
| SCOPE | Santa Clarita Organization for Planning the Environment |
| SCVSD | Santa Clarita Valley Sanitation District |
| SCWD | Santa Clarita Water Division |
| RMC | Rivers and Mountains Conservancy |
| USFS | United States Forest Service |
| VWC | Valencia Water Company |

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# Section 6: Finance Plan

## 6.1 Potential Funding Options

Initial funding for IRWMP preparation was provided by the RWMG through an MOU; IRWMP implementation will require additional funding. There are opportunities for grant funding that are available to the Stakeholders in the Region and that are well suited to many Candidate Projects. Many of these grant opportunities require that the Local Project Sponsor provide matching funds ("local match") and funds for operations and maintenance once a project or program is constructed. The source of local match and funds for operations and maintenance may include: water and wastewater general funds; capital improvement funds; and general funds from local Cities, County departments, private organizations, member dues, etc. Local taxpayers may also fund these projects through rate increases, bond measures, and tax increases.

This section identifies various funding sources and their associated requirements and guidelines, to assist with implementation of Plan Projects. Sections 6.2 through 6.4 present information on local, State, and Federal funding sources, while Section 6.5 focuses on direct funding options for Plan Projects. Table 6.1-1 provides a summary of funding opportunities broken into local, state, and federal funding sources and provides contact information for each funding program. Due to the length of Table 6.1-1 it is provided at the end of this section.

## 6.2 Local

In the past, local entities have planned, implemented, and funded construction and operation of water-related projects. These funds may be available to fund Plan Projects or to provide the local match.

### 6.2.1 Capital Improvements Program Funding (Revenue Bonds, Certificates of Participation)

Water districts, as well as other government entities (e.g., counties and cities) can raise funds by issuing municipal bonds or certificates of participation. Bonds and certificates of participation are governed by an extensive system of laws and regulations. Under these systems, investors provide immediate funding for the promise of later repayment. Generally, bonds and certificates of participation are used for capital improvement projects. In the case of a water district, bonds and certificates are secured by revenues from the water system and by property taxes received by the agency.

### 6.2.2 Property Tax Assessment (Assessed Valuation)

Property taxes are a large source of revenue for water-related projects and agencies in the Region. The Los Angeles County Tax Assessor collects the charges on behalf of various districts. This funding is used for general expenditures, capital improvements, and to service bond and certificate debt. While this is a large and important source of funding for local agencies, in some cases, the State of California can divert these funds.

During FY 2005/06 and FY 2006/07, the State diverted over 65 percent of CLWA's property tax revenues. Future losses of property taxes may hinder the ability to fund water-related projects.

### 6.2.3 User Fees

Funding for operation and maintenance of water-related projects often comes from user fees, which are charges for water delivered to a home or charges for wholesale water supplies. In addition to these fees, many agencies also charge "hook-up" or "connection" fees – charges for providing facilities to provide water or wastewater services to a new development. These fees are also known as "facility capacity fees." Facility capacity fee revenue is difficult to forecast due to the unpredictable timing of development activity. Development activity depends on real estate demands, the regional economy, and land use planning activity.

## 6.3 State

Potential funding for IRWMP implementation may be available through various State programs, including Propositions 84, 1E, and 50. The discussion below and Table 6.1-1 provide information on State funding opportunities.

**POTENTIAL STATE FUNDING SOURCES FOR IRWMP IMPLEMENTATION:**

- Proposition 84
- Proposition 1E
- Proposition 50
- Other (Pending Legislation, State Revolving Fund)

### 6.3.1 Proposition 84

The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act of 2006 (Public Resources Code § 75001, et seq.), was passed by California voters in the November 2006 general election. Proposition 84 will be implemented by DPH, DWR, and the SWRCB. Specific grant funding programs available under Proposition 84 are highlighted below:

#### 6.3.1.1 Integrated Regional Water Management Planning

DWR will offer grants for projects that assist local public agencies to meet the long-term water needs of the State including the delivery of safe drinking water and the protection of water quality and the environment. Proposition 84 allocated $1 billion to integrated regional water management planning grants; of this amount, $215 million is earmarked for the Los Angeles-Ventura area. Eligible projects must be part of integrated regional water management plans. Under current Guidelines, projects eligible for integrated regional water management plan funding include:

- Development of integrated regional water management plans or components thereof
- Completion or modification of integrated regional water management plans
- Programs for water supply reliability, water conservation, and water use efficiency
- Storm water capture, storage, treatment, and management
- Removal of invasive non-native plants, the creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands

- Non-point source pollution reduction, management, and monitoring
- Groundwater recharge and management projects
- Contaminant and salt removal through reclamation, desalting, and other treatment technologies
- Water banking, water exchange, water reclamation, and improvement of water quality
- Planning and implementation of multipurpose flood control programs that: protect property; improve water quality, storm water capture and percolation; and protect or improve wildlife habitat
- Watershed management planning and implementation
- Demonstration projects to develop new drinking water treatment and distribution methods

Pending legislation may alter the types of projects eligible for funding as part of an integrated regional water management plan.

#### 6.3.1.2 Department of Public Health - Emergency and Urgent Water Protection

DPH offers grants for projects that address emergency and urgent situations related to drinking water supplies. Eligible projects include, but are not limited to, provision of alternate water supplies, improvements to existing water systems to avoid contamination, establishment of new connections, and purchase and installation of water treatment equipment. The program is open to local water suppliers.

#### 6.3.1.3 Department of Public Health - Small Community Drinking Water Infrastructure

DPH offers grants for small community drinking water system infrastructure improvements and related actions to meet safe drinking water standards. Priority for these grants is given to projects that address chemical and nitrate contaminants and other health hazards. Priority is also given for projects that benefit Disadvantaged Communities. Eligible recipients include public agencies and incorporated mutual water companies that serve Disadvantaged Communities.

#### 6.3.1.4 Department of Public Health – Prevention of Groundwater Contamination

Loans and grants are available from DPH for projects that prevent or reduce contamination of groundwater that serves as a source of drinking water. Community water systems are eligible for these grants and loans and preference is given to projects that serve Disadvantaged Communities.

#### 6.3.1.5 State Water Resources Control Board – Storm Water Grant Program

The SWRCB provides grant funds for projects designed to reduce and prevent storm water contamination of rivers, lakes, and streams. Eighty two million dollars in funding, up to $5 million per project, is available. These grants are available to local public agencies. Preference

is given to projects consistent with an integrated regional water management plan and projects that promote long-term water quality.

### 6.3.2 Proposition 1E

Proposition 1E, the Disaster Preparedness and Flood Protection Bond Act, encourages new investments for flood protection and storm water management programs. Within Proposition 1E, $3 million in grants are available from DWR to local entities for storm water runoff projects. These projects must be outside of the State Plan of Flood Control and be consistent with an integrated regional water management plan. In addition, local match must be at least 50 percent of project costs. Preference is given to projects that use storm water management to improve groundwater supplies, improve water quality, and to restore ecosystems.

### 6.3.3 Proposition 50

The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002, Water Code §79500, et seq., was passed by California voters in the November 2002 general election. Proposition 50 authorized $3,440,000,000 in general obligation bonds, to be repaid from the State's General Fund, to fund a variety of water projects including: specified CALFED Bay-Delta Program projects including urban and agricultural water use efficiency projects; grants and loans to reduce Colorado River water use; purchasing, protecting and restoring coastal wetlands near urban areas; competitive grants for water management and water quality improvement projects; development of river parkways; improved security for state, local and regional water systems; and grants for desalination and drinking water disinfecting projects. Many grant programs funded by Proposition 50 have concluded, but those funding programs still accepting applications are summarized below.

#### 6.3.3.1 Department of Water Resources – Water Use Efficiency Grants

This grant program is intended to fund agricultural and urban water use efficiency projects. The program focuses on funding projects that are not locally cost effective, and that provide water savings or in-stream flows that are beneficial to the Bay-Delta or the rest of the State. Consideration is also given to projects that address water quality and energy efficiency. Specific types of projects that can be funded include: water use efficiency implementation projects providing benefits to the State; research and development projects; feasibility studies, pilot or demonstration projects; training, education or public outreach programs; and technical assistance programs related to water use efficiency. Cities, counties, joint power authorities, public water districts, tribes, non-profit organizations (including watershed management groups), other political subdivisions of the State, regulated investor-owned utilities, incorporated mutual water companies, universities and colleges, and State and Federal agencies are eligible applicants. Grants to urban water suppliers are conditioned on implementation of the Demand Management Measures described in CWC §10631. In years 2006 to 2007 $35.3 million was allocated to fund water use efficiency grants.

#### 6.3.3.2 Department of Public Health – Water Security

These funds may be used for projects designed to: prevent damage to water treatment, distribution, and supply facilities; to prevent disruption of drinking water deliveries; and to protect drinking water supplies from intentional contamination. Eligible projects include: monitoring and

early warning systems; fencing; protective structures; contamination treatment facilities; emergency interties; and communications systems. Grants cannot be used to supplant funding for routine responsibilities or for projects previously required by a DPH compliance order, permit condition or regulation. Grants are a minimum of $50,000, up to a maximum of $10,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems are eligible to receive these funds.

#### 6.3.3.3 Department of Public Health - Small Community Water System Facilities

This grant program provides money to small community water systems that are in non-compliance with a safe drinking water standard. Community water systems with fewer than 1,000 connections or with a population of less than 3,000 persons are eligible to receive these funds. Monies are to be used to upgrade monitoring, treatment, or distribution infrastructure. Grants are a minimum of $5,000, up to a maximum of $2,000,000. No local match is required and up to 25 percent of program funding is set aside to support projects benefiting Disadvantaged Communities.

#### 6.3.3.4 Department of Public Health - Water System Monitoring Facilities

Like the Small Community Water System Facilities grant program, this program provides money to community water systems that are in non-compliance with a safe drinking water standard. However, this program is not limited to "small" community water systems as defined above. Monies are to be used to upgrade monitoring, treatment, or distribution infrastructure. Grants are a minimum of $5,000, up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Community water systems are eligible to receive these funds.

#### 6.3.3.5 Department of Public Health - Contaminant Treatment and Removal

DPH offers grants to finance development and demonstration of new treatment and related facilities for water contaminant removal and treatment. Grants are a minimum of $50,000, up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems are eligible to receive these funds.

#### 6.3.3.6 Department of Public Health - Drinking Water Source Protection

Grants are provided for source water protection projects to prevent contamination of the water supply. Projects should prevent a possible contaminating activity from releasing contaminants, or to prevent contaminants that have been released from reaching the water supply. Funds may be used for planning, preliminary engineering, detailed design, construction, education, land acquisition, conservation easements, equipment purchase, and implementing the elements of a surface water protection program. Funds may not be used to clean up contamination or install treatment on existing water sources. Grants are a minimum of $50,000, up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems are eligible for these funds.

#### 6.3.3.7 Department of Public Health – Byproduct Treatment Facilities

Grants are offered by DPH for public water systems in noncompliance with the US EPA Stage 1 Disinfection Byproducts rule. Grants are intended to fund construction of treatment facilities necessary to meet disinfection byproduct safe drinking water standards. Applicants with the greatest health risk from disinfection byproducts will be given priority for funding. Grants are a minimum of $50,000 up to a maximum of $2,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems.

#### 6.3.3.8 Department of Public Health – Contaminant Removal

DPH provides funds for contaminant treatment or removal technology pilot and demonstration studies for specific categories of contaminants including petroleum, perchlorate, heavy metals, pesticides, and herbicides. Grants are a minimum of $50,000, up to a maximum of $5,000,000. A 50 percent match is required, but this requirement is waived in part or in full for Disadvantaged Communities and small water systems. Public water systems and public entities are eligible for this funding program.

#### 6.3.3.9 Department of Public Health – UV and Ozone Disinfection

Grants to support projects using ultraviolet or ozone for disinfection of drinking water are also offered by DPH. A funded project must address a drinking water compliance violation, surface water treatment requirements, or other mandatory disinfection requirement. Public water systems are eligible for this funding program.

### 6.3.4 Other State Funding

#### 6.3.4.1 State Revolving Fund

The Federal Safe Drinking Water Act Amendments of 1996 authorized the creation of a revolving fund program for public water system infrastructure needs specific to drinking water. There is similar State legislation and the Safe Drinking Water State Revolving Fund reflects the intent of Federal and State laws to provide grant funding or low-interest loans to correct deficiencies in public water systems based on a prioritized system. Highest priority is given to projects that address public health risk, projects that will assist a public water system with compliance with the Safe Drinking Water Act, and projects that assist those public water systems most in need. Funding is available for construction/enhancement of public water systems, construction of local sewers and sewer interceptors, water reclamation facilities, and related projects such as implementation of nonpoint source pollution prevention projects and water reclamation. The program is funded by Federal grants, State funds (including Proposition 50 and Proposition 84), and revenue bonds. The program is administered by DPH and the SWRCB. Publicly owned treatment works, local public agencies, non-profit organizations, and private parties are eligible for funding.

#### 6.3.4.2 State Water Resources Control Board – Federal 319 Program

This program, administered by the SWRCB, is a nonpoint source pollution control program that is focused on controlling activities that impair beneficial uses and on limiting pollutant effects caused by those activities. The program is federally funded on an annual basis. Project

proposals that address TMDL implementation and those that address problems in impaired waters are favored in the selection process. There is also a focus on implementing management activities that reduce and/or prevent release of pollutants that impair surface and ground waters. Nonprofit organizations, local government agencies including special districts, tribes, and educational institutions qualify. State or federal agencies may qualify if they are collaborating with local entities and are involved in watershed management or proposing a statewide project.

#### 6.3.4.3 State Water Resources Control Board – Water Recycling Funding Program

This is a long-term program operated by the SWRCB that offers grants and low-interest loans for the planning, design and construction of water recycling facilities. Grants are provided for facilities planning studies to determine the feasibility of using recycled water to offset the use of fresh/potable water from state and/or local supplies. Pollution control studies, in which water recycling is an alternative, are not eligible. Planning grants are limited to 50 percent of eligible costs, up to $75,000. Construction grants are limited to 25 percent of project costs or $5,000,000, whichever is less. Only public agencies are eligible. The Water Recycling Funding Program receives funding from various sources, including Proposition 50 and the State Revolving Fund. Due to the varying funding sources, preferences for funding can vary. For example, funding from Proposition 50 gives preference to those recycling projects that result in benefits to the Delta.

#### 6.3.4.4 Department of Water Resources – Local Groundwater Assistance Program

The Local Groundwater Management Assistance Act of 2000 (CWC § 10795 et seq., Assembly Bill 303) was enacted to provide grants to local public agencies to conduct groundwater studies or to carry out groundwater monitoring and management activities. Priority for grant funding is given to local public agencies that have adopted a groundwater management plan and demonstrate collaboration with other agencies in the management of the affected groundwater basin. Eligible applicants are public agencies with groundwater management authority. Grants up to $250,000 are available. This program is funded through various sources; currently, funding is available through Proposition 50.

#### 6.3.4.5 Pending Legislation

In March 2008, State Senator Machado introduced SBX2 6, the Safe Drinking Water Act of 2008. SBX2 6 proposes a $6.8 billion bond to fund water supply reliability, Delta sustainability, clean drinking water, pollution prevention, clean beaches, groundwater quality, water recycling, and water conservation. Both direct funding and grants are proposed, with grants focused on water supply reliability projects such as agricultural and urban water use efficiency, conjunctive use, recycling/desalination, and groundwater pollution prevention and clean-up. Grants would be competitive and only projects consistent with integrated regional water management plan standards would be eligible. The proposal is undergoing review and negotiation by the State Senate.

## 6.4 Federal

This section includes a discussion of funds available through various federal programs and specifies eligibility requirements. A summary of potential federal funding sources is provided in Table 6.1-1.

### 6.4.1 Environmental Protection Agency, Source Reduction Assistance

The purpose of this program is to prevent the generation of pollutants at the source and ultimately provide an overall benefit to the environment. This program seeks projects that support source reduction, pollution prevention, and/or source conservation practices. Source reduction activities include: modifying equipment or technology; modifying processes or procedures; reformulating or redesigning products; substituting raw materials; and generating improvements in housekeeping, maintenance, training, or inventory control. Pollution prevention activities reduce or eliminate the creation of pollutants via such procedures as: using raw materials, energy, water or other resources more efficiently; protecting natural resources through conservation; preventing pollution; and promoting the re-use of materials and/or conservation of energy and materials. Eligible organizations include units of State, local, and tribal government; independent school district governments; private or public colleges and universities; nonprofit organizations; and community-based grassroots organizations.

### 6.4.2 Environmental Protection Agency, Wetlands Program Development Grants

This program seeks projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. The US EPA has identified three priority areas: (1) the development of a comprehensive monitoring and assessment program; (2) the improvement of the effectiveness of compensatory mitigation; and (3) the refinement of the protection of vulnerable wetlands and aquatic resources. Typically, grant amounts range from $25,000 to $250,000, but there is no set amount. A 25 percent match is required. Eligible entities include States, tribes, local governments, interstate associations, intertribal consortia, and national non-profit, non-governmental organizations.

### 6.4.3 National Park Service, Rivers, Trails, and Conservation Assistance (RTCA) Program

The purpose of this program is to conserve rivers, preserve open space, and develop trails and greenways. The program provides staff assistance, but not funding, to meet this intent. Projects will be evaluated on how successfully they meet the following criteria: (1) a clear anticipated outcome leading to on-the-ground success; (2) commitment, cooperation, and cost-sharing by interested public agencies and non-profit organizations; (3) opportunity for significant public involvement; (4) protection of significant natural and/or cultural resources and enhancement of outdoor recreational opportunities; and (5) consistency with the National Park Service mission. Eligible organizations include non-profits, community groups, tribes or tribal governments, and state or local government agencies.

### 6.4.4 Natural Resources Conservation Service, Watershed Protection and Flood Prevention Grant

The purpose of the program is to support activities that promote soil conservation and that promote the preservation of the watersheds of rivers and streams throughout the US. This program seeks to preserve and improve land and water resources via the prevention of erosion, floodwater, and sediment damages. The program supports improvement of: (1) flood prevention including structural and land treatment measures; (2) conservation, development, utilization, and disposal of water; or (3) conservation and proper utilization of land. Successful applicants under this program receive support for watershed surveys and planning, as well as watershed protection and flood prevention operations. Funding for watershed surveys and planning is intended to assist in the development of watershed plans to identify solutions that use conservation practices, including nonstructural measures, to ultimately solve problems.

Matching funds are not required; however, applicants must generally provide matches ranging from 0 percent to 50 percent in cash or in-kind resources depending on such factors as project type and the kinds of structural measures which a project proposes.

Eligible entities include: states, local governments, and other political subdivisions; soil or water conservation districts; flood prevention or control districts; and tribes. Potential applicants must be able to obtain all appropriate land and water rights and permits to successfully implement proposed projects.

### 6.4.5 US Department of Agriculture, Water and Waste Disposal Program

The Water and Waste Disposal Program provides financial assistance in the form of grants and loans for the development and rehabilitation of water, wastewater, and storm drain systems within rural communities. Funds may be used for costs associated with planning, design, and construction of new or existing water, wastewater, and storm drain systems. Eligible projects include storage, distribution systems, and water source development. There are no funding limits, but the average project is granted $1,800,000. Projects must benefit cities, towns, public bodies, and census-designated places with a population less than 10,000 persons. The intent of the program is to improve rural economic development and improve public health and safety.

### 6.4.6 US Bureau of Reclamation, Challenge Grant Program

This grant program is intended to fund collaborative local projects that improve water conservation and management through advanced technology and conservation markets. Through this program, federal funding is provided to irrigation and water districts for up to 50 percent of the cost of projects involving conservation, efficiency and water marketing. Eligible applicants include irrigation and water districts and state governmental entities with water management authority. Applicants must be located in the western US (California is an eligible area). Applicants do not have to be part of a Reclamation project but proposals with a connection to Reclamation will receive more weight in the evaluation process.

### 6.4.7 US Fish and Wildlife Service, North American Wetlands Conservation Act Grant

This grant provides funds for projects that provide long-term protection of wetlands, and the fish and wildlife that depend upon wetlands. Applicants must provide local match equal to that requested. Entities that are eligible include organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the US, Canada, and Mexico. Applications are continuously accepted by the US FWS for this grant.

### 6.4.8 Federal Legislation

Specific congressional authorizations and funding may be obtained to study, build, and construct specific projects in the Region. Potential sources include legislation and funding associated with renewal of the CWA, SWDA, and appropriations for specific agencies, such as the US ACE and the US EPA.

The Water Resources Development Act (WRDA) authorizes projects and policies of the Civil Works program of the US ACE. The US ACE is a federal agency in the Department of Defense with military and civilian responsibilities. At the direction of Congress, US ACE plans, builds, operates, and maintains a wide range of water resources facilities in US states and territories. The agency's traditional civil responsibilities have been creating and maintaining navigable channels and controlling floods. However, in the last two decades, Congress has increased US ACE's responsibilities in ecosystem restoration, municipal water and wastewater infrastructure, disaster relief, and other activities. WRDA often includes specific authorizations for federal, regional, and local projects. Inclusion in WRDA authorizes a given project but does not guarantee funding for a specific project.

Local projects can also receive authorization and federal funding as part of appropriations for the US EPA. The US EPA will enter into assistance agreements with local agencies to fund studies and projects associated with: (1) various environmental requirements (e.g., wastewater treatment); (2) identifying, developing, and/or demonstrating necessary pollution control techniques to prevent, reduce, and eliminate pollution; and/or (3) evaluating the economic and social consequences of alternative strategies and mechanisms for use by those in economic, social, governmental, and environmental management positions.

## 6.5 Selected Plan Project Cost Estimates

Estimated costs, matching funds, and potential funding sources for Plan Projects will be identified after project selection has taken place.

## 6.6 Grant Funding Package

Securing funding for the selected Plan Projects is a significant issue for IRWMP implementation. For each funding source identified, suitable projects on the Plan Projects list will be put forward in an application. A summary of funding needs and the funding status for each Plan Project will be prepared after project selection has taken place. This summary will include estimates of outside funding assistance, amount of matching funds, type of matching funds, and whether the matching funds have been secured.

**TABLE 6.1-1**
**POSSIBLE FUNDING OPPORTUNITIES**

| LOCAL | | | | | | |
|---|---|---|---|---|---|---|
| Local funding opportunities include revenue bonds, certificates of participation, property taxes, existing capital improvement budgets, and user fees. | | | | | | |
| **STATE** | | | | | | |
| **Funding Objective** | **Program** | **Brief Description** | **Key Points** | **Eligibility** | **Submit Grant Application** | **Contact** |
| **Proposition 84 (by chapter)** | | | | | | |
| Water Quality, Water Supply, Resource Stewardship | DWR | Funding for IRWMP planning and implementation | $100M budget, $215M allocated to the Ventura-Los Angeles Funding Area | Public agencies and non-profit organizations (other groups may also receive funding if teamed with public agency or non-profit organization) | Funding anticipated in FY 2008. | Joe Yun jyun@water.ca.gov |
| Water Quality | DPH | Emergency/urgent water supply protection | $10M budget; max grant $250,000 | Local water suppliers | Funding anticipated in FY 2008. | DPH (916) 449-5600 |
| Water Quality | DPH | Small Community Drinking Water Infrastructure Program | $180M budget, max grant $5 million | Local water suppliers | Funding anticipated in FY 2008. | DPH (916) 449-5601 |
| Water Quality | DPH | Prevention of Groundwater Contamination | $50M budget | Community water systems, preference for systems serving Disadvantaged Communities | Funding anticipated in FY 2008. | DPH (916) 449-5602 |
| Water Quality | SWRCB | Storm Water Grant Program | $90M budget | Local public agencies | Final Guidelines November 2007; TBD | Erin Ragazzi (916) 341-5733 |
| **Proposition 1E** | | | | | | |
| Resource Stewardship | DWR | FloodSAFE California. Grants for stormwater flood management projects with non-state cost share of not less than 50%; projects must not be part of State Plan for Flood control, must have multiple benefits, comply with Basin Plans, and be consistent with an IRWMP | $300M | DWR has not yet provided information on eligible applicants | DWR has not yet provided information on funding or applications for this program | floodSAFE@water.ca.gov |
| **Proposition 50** | | | | | | |
| Water Supply | DWR | Water Use Efficiency Grants. Program primarily funds projects not locally cost effective, and that provide water savings, or in-stream flows that are beneficial to the Bay-Delta or the rest of the state. Consideration also for water quality and energy efficiency | Two step on-line process application process: first step is concept proposal and second step is detailed on-line submittal. | Cities, counties, districts, tribes, non-profits; utilities and mutual water companies, universities, colleges, state and federal agencies | Applications accepted in periodic application cycles | Baryohay Davidoff, DWR (916) 651-9666 |
| Water Supply | DPH | Water Security. Grants for protection of state, local, and regional drinking water systems | Grants cannot be used for the routine responsibilities or projects previously required by a DPH compliance order, permit or regulation. $10 million maximum grant per project; $50,000 minimum; 1 to 1 local resource match to grant award required except for small community systems and Disadvantaged Communities. | State, local, and regional drinking water systems under DPH regulation | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2734 |

**TABLE 6.1-1**
**POSSIBLE FUNDING OPPORTUNITIES**

| Funding Objective | Program | Brief Description | Key Points | Eligibility | Submit Grant Application | Contact |
|---|---|---|---|---|---|---|
| Water Quality | DPH | Small Community Water System Facilities: Upgrade monitoring, treatment, or distribution infrastructure of small community water systems; must be in noncompliance with a safe drinking water standard | Project Funding: $5,000-$2 million. No required local match. | Small Community Water Systems: < 1,000 connections or 3,300 people | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2735 |
| Water Quality | DPH | Community Water System Monitoring Facilities: Water quality monitoring facilities and equipment; must be in non compliance with a safe drinking water standard | Project Funding: $5,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. | Public water systems under DPH regulation | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2736 |
| Water Quality | DPH | Demonstration Projects & Studies for Contaminant Treatment: Development and demonstration of new treatment and related facilities for water contaminant removal and treatment | Project Funding: $50,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. | Public water systems under DPH regulation | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2737 |
| Water Quality | DPH | Drinking Water Source Protection: For planning, preliminary engineering, detailed design, construction, education, land acquisition, conservation easements, equipment purchase, and implementing the elements of a Source Water Protection program | Project Funding: $50,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. | Public water systems under DPH regulation | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2738 |
| Water Quality | DPH | Disinfection By-Product Treatment Facilities: To meet DBP safe drinking water standards, must be in non-compliance with the EPA Stage 1 DBP Rule MCLs or treatment technique | Project Funding: $50,000-$2 million. 50% local match required, but waived for Disadvantaged Communities and small water systems. | Public water systems under DPH regulation | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2739 |
| Water Quality | DPH | Demonstration Projects and Studies for Contaminant Removal: Treatment or removal technology for the following contaminants: Petroleum products, such as MTBE and BTEX, N-Nitrosodimethylamine (NDMA), Perchlorate, Radionuclides, such as radon, uranium, and radium, Pesticides and herbicides, Heavy metals, such as arsenic, mercury, and chromium, Pharmaceuticals and endocrine disrupters | Project Funding: $50,000-$5 million No more than 30% of the funds can address a single contaminant. 50% match that can be waived for Disadvantaged Communities or small water systems. | Public water systems under DPH regulation | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2740 |
| Water Quality | DPH | Ultraviolet (UV) and Ozone Disinfection. Must address an Maximum Contaminant Level (MCL) compliance violation, surface water treatment microbial requirements, or other mandatory disinfection that can only be met by UV/ or ozone; the water system must demonstrate that it can operate and maintain the treatment facilities; ozone treatment projects shall be designed and operated to minimize residual disinfection byproduct formation from the ozone treatment | Project Funding: $50,000-$5 million; | Public water systems under DPH regulation | DPH provides a universal application for most of its grant programs. http://www.dhs.ca.gov/ps/ddwem/funding/default.htm | Mark Bartson (707) 576-2741 |

**TABLE 6.1-1**
**POSSIBLE FUNDING OPPORTUNITIES**

| Funding Objective | Program | Brief Description | Key Points | Eligibility | Submit Grant Application | Contact |
|---|---|---|---|---|---|---|
| **Other** | | | | | | |
| Water Quality | DPH, SWRCB | State Revolving Fund: Provides low-interest loans and/or grants to assist public agencies in correcting deficiencies in water infrastructure | Grants and loans can be combined with other funding sources. | Publicly owned treatment works, local public agencies, non-profit organizations, and private parties | Applications vary depending on type of project and agency from which funds requested. Applications are accepted on a continuing basis. | Steve Woods (DPH) (916) 449-5624 Dave Kirn (SWRCB) dkirn@waterboards.ca.gov |
| Water Quality | SWRCB | Federal 319 Program. Funding to support projects throughout the State to restore impaired surface waters through the control of nonpoint source pollution | Project Funding: $250,000-$1 million. 25% local match required, but waived for Disadvantaged Communities and small water systems. | Public agencies, public colleges, 501(c)(3) non-profit organizations, tribes, state and federal entities | Applications accepted in periodic application cycles. | Julé Rizzardo (916) 341-5822 |
| Water Supply | SWRCB | Water Recycling Funding Program | Grants up to $75,000 for planning studies; local match is 25% for planning studies. Grants up to 25% of costs or $5M (whichever is less) for construction. | Public agencies | Applications accepted on continuous basis. | Claudia Villacorta (916) 341-5735 |
| Water Quality | DWR | Local Groundwater Assistance | Up to $250,000 per eligible applicant | Public agencies | Applications accepted in periodic application cycles. | Harley H. Davis (916) 651-9229 |
| **FEDERAL** | | | | | | |
| **Funding Category** | **Program** | **Brief Description** | **Key Points** | **Eligibility** | **Submit Grant Application** | **Contact** |
| Water Quality | EPA | Source Reduction Assistance: The purpose of this program is to provide an overall benefit to the environment by preventing the generation of pollutants at the source. This program seeks projects that support source reduction, pollution prevention, and/or source conservation practices. | Specific requirements for measurement and reporting requirements. | Units of state, local, and tribal government; independent school district governments; private or public colleges and universities; nonprofits; and community-based grassroots organizations. | Funding opportunity anticipated in FY 2008. | Leif Magnuson - Pollution Prevention Coordinator (415) 972-3286 |
| Water Quality and Resource Stewardship | EPA | EPA Wetlands Program Development Grants: Projects that promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution | Three priority areas identified by the EPA: Developing a comprehensive monitoring and assessment program; improving the effectiveness of compensatory mitigation; and refining the protection of vulnerable wetlands and aquatic resources. Typically $25,000 to $250,000, but no set amount. 25% match required. | States, tribes, local governments, interstate associations, intertribal consortia, and national non-profit, non-governmental organizations are eligible to apply. | Grants to be awarded in FY 2008. Funding in later years is unknown. | Suzanne Marr US EPA Region 9 (415) 972-3468 |

**TABLE 6.1-1**
**POSSIBLE FUNDING OPPORTUNITIES**

| Funding Objective | Program | Brief Description | Key Points | Eligibility | Submit Grant Application | Contact |
|---|---|---|---|---|---|---|
| Resource Stewardship | National Park Service | Rivers, Trails, and Conservation Assistance Program: The program provides staff assistance to conserve rivers, preserve open space, and develop trails and greenways. | Projects will be evaluated on how they meet the following criteria: 1) A clear outcome leading to on the ground success; 2) Commitment, cooperation, and cost-sharing by applicant; 3) Opportunity for significant public involvement; 4) Protection of significant natural and/or cultural resources and enhancement of outdoor recreational opportunities; and 5) Consistency with the National Park Service mission. | Nonprofits, community groups, tribes, or tribal governments; and state or local government agencies. | Applications are due August 1st for assistance during the next fiscal year. http://www.nps.gov/rtca/ | Charlie Stockman (202) 354-6900 |
| Resource Stewardship | Natural Resources Conservation Service | Watershed Protection and Flood Prevention: Funding for activities that promote soil conservation and the preservation of the watersheds of rivers and streams throughout the US. | Matching funds are not required: applicants must generally provide matching ranging from 0%-50% in cash or in-kind resources depending on such factors as project type and the kinds of structural measures a project proposes. | States, local governments, and other political subdivisions; soil or water conservation districts; flood prevention or control districts and tribes. Potential applicants must be able to obtain all appropriate land and water rights and permits to successfully implement proposed projects. | Not currently soliciting applications. | Luana Kiger, Acting Director Watershed Planning Services (530) 792-5661 |
| Water Quality | United States Department of Agriculture (USDA) Rural Development | Water and Waste Disposal Program: Program that provides financial assistance (loans and grants) for community water, wastewater, and drainage systems in rural areas | Funds may be used for planning, design, and construction of new or existing systems; eligible projects include storage, distribution, source development; no funding limits, but average project size is $1.8 million. Greater funding share provided for low-income communities. | Cities, towns, public bodies, and census designated places with populations less than 10,000. Must demonstrate financial need. | Applications accepted on continuous basis. | Dave Hartwell USDA State Office (530) 792-5818 |
| Water Supply | United States Bureau of Reclamation (Reclamation) | Challenge Grant Program: Reclamation provides 50/50 cost share funding to irrigation and water districts and states for projects focused on water conservation, efficiency, and water marketing | Matching funds are required. Applicants must provide a minimum 50% of project costs in non-Federal cash or in-kind resources. Project work generally must be completed within 2 years of grant execution. | Eligible applicants include irrigation and water districts, state governmental entities with water management authority. Projects must be located in Western United States. | Funding opportunity anticipated in FY 2008. | Mr. Miguel Rocha, Water 2025 Program Coordinator, (303) 445-2841 |
| Resource Stewardship | US Fish and Wildlife Service (USFWS) | North American Wetlands Conservation Act: Provides funding, up to $75,000, for projects that provide long-term protection of wetlands and wetlands dependent fish and wildlife. | Partners must match the grant request at a 1 to 1 ratio. | Organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the US, Canada, and Mexico. | Applications accepted on continuous basis. | Division of Bird Habitat Conservation, (703) 358-1784 |

# Section 7: Data Management, Technical Analyses, and Plan Performance

This section is organized into two parts to summarize the data management, technical analyses, and performance of the Upper Santa Clara River IRWMP. Section 7.1 describes the data management efforts and technical analyses conducted during preparation of the IRWMP. Section 7.2 examines monitoring, ongoing data management, and plan performance during implementation, and describes how performance data will be used to improve future versions of the IRWMP.

In general, the success of the IRWMP will depend on how well the individual plan objectives are accomplished. Achievement of all of these objectives will, in large part, determine the success of local integrated regional water management planning processes.

The following measurable objectives, discussed in Section 3, were developed to allow progress of the overall IRWMP to be measured:

- ***Reduce Water Demand*:** Implement technological, legislative and behavioral changes that will reduce user demands for water.
- ***Improve Operational Efficiency:*** Maximize water system operational flexibility and efficiency, including energy efficiency.
- ***Increase Water Supply:*** Understand future regional demands and obtain necessary water supply sources.
- ***Improve Water Quality:*** Supply drinking water with appropriate quality; improve groundwater quality; and attain water quality standards.
- ***Promote Resource Stewardship*:** Preserve and improve ecosystem health; improve flood management; and preserve and enhance water-dependent recreation.

## 7.1 Data Management and Technical Analyses for Plan Preparation

The Upper Santa Clara River IRWMP documents the results of a comprehensive 16 month effort of over 10 public agencies with varying water and flood management responsibilities, as well as numerous other interested entities. The IRWMP was prepared using information and guidance provided by the RWMG and Stakeholder group. The IRWMP in turn, will be used by these same entities to guide and support their future water management efforts.

Extensive information and data on the Region have been prepared by various agencies and groups. That information was reviewed and evaluated as part of this IRWMP and served as the foundation for the development of this plan, as described below.

### 7.1.1 Existing Information and Reports

The following documents contain the baseline information used in the development of the IRWMP. A brief summary of the reports, how often they are updated, identification of who participates in their preparation and identification of the type of information generated by the document is provided for each report listed.

#### 7.1.1.1 Water Resource Management Reports

These reports document the reliability and availability of the Region's water supplies to meet current and projected demands. These reports include both urban water management plans and groundwater management plans.

The California Urban Water Management Planning Act applies to public and private municipal water suppliers with more than 3,000 connections or supplying more than 3,000 AFY. The act requires suppliers to describe and evaluate sources of water supply, efficient uses of water, certain demand management measures (DMMs), implementation strategy and schedule, and other relevant information and programs. This information is used by the urban water supplier to develop an UWMP which is submitted to DWR in years ending in five and zero (e.g., 2000, 2005, 2010).

Assembly Bill 3030 (AB 3030), the Groundwater Management Act, authorized local agencies to prepare groundwater management plans for groundwater basins not subject to adjudication or other form of regulation. AB 3030 lays out a procedure for development of a groundwater management plan. The act also specifies twelve technical components which can be included in a groundwater management plan, including replenishment strategy, mitigation of overdraft, mitigation of contaminated groundwater, and avoidance of saline intrusion.

##### *7.1.1.1.1 2005 Antelope Valley-East Kern Water Agency UWMP*

A small amount of SWP water is available to a portion of the eastern part of the Region through deliveries from AVEK, a wholesale SWP provider. The 2005 AVEK UWMP assesses current (2005) and projected water supplies for AVEK's service area. AVEK's UWMP will be updated in 2010.

##### *7.1.1.1.2 2005 CLWA and Retail Water Purveyors UWMP*

The 2005 UWMP was prepared for CLWA and three of the purveyors: NCWD, SCWD, and VWC. The fourth purveyor, LACWWD No. 36, was not included because it does not meet the Urban Water Management Plan Act's threshold requirements for preparation of UWMPs. However, LACWWD No. 36 participated in the development of the plan. The 2005 UWMP contains information on water use, water resources, recycled water, water quality, reliability planning, DMMs, and water shortage contingency planning within the CLWA service area. The 2005 UWMP will be updated in 2010.

##### *7.1.1.1.3 Castaic Lake Water Agency GWMP*

CLWA has prepared a GWMP, pursuant to AB 3030 for the Santa Clara River Valley Groundwater Basin, East Subbasin. The East Subbasin is comprised of two aquifer systems, the Alluvium generally underlying the Santa Clara River and its several tributaries, and the

Saugus Formation which underlies much of the entire Upper Santa Clara River area. The GWMP provides background information on the East Subbasin. The GMWP has also led to on-going data monitoring and reporting, detailed in section 7.1.3.

#### *7.1.1.1.4 Annual Santa Clarita Valley Water Reports*

Publication of the *Annual Santa Clarita Valley Water Report* began in 1998. These reports provide current information about local groundwater resources, SWP water supplies, water conservation, and recycled water in the Valley on an annual basis. The reports review the sufficiency and reliability of supplies in the context of existing water demand, with focus on actual conditions in the year prior to publication, and provide a short-term outlook of water supply and demand for the upcoming year. The reports are prepared by CLWA and the four water purveyors: LACWWD 36, NCWD, SCWD, and VWC.

### 7.1.1.2 Facilities Plans and Master Plans

A facilities plan and/or master plan is a physical development plan that provides the framework by which future planning decisions are made. It is an action plan for a particular resource or service such as recycled water, flood control, and wastewater facilities.

#### *7.1.1.2.1 2015 Santa Clarita Valley Joint Sewerage System Facilities Plan*

The *2015 Santa Clarita Valley Joint Sewerage System Facilities Plan* (2015 Plan), was prepared in 1998 by the LACSD Nos. 26 and 32. LACSD No. 26 and 32 provide sewerage services to the Valley, and they jointly operate a regional wastewater system known as the Santa Clarita Valley Joint Sewerage System (SCVJSS). The SCVJSS service area includes the City of Santa Clarita and unincorporated County areas. The objective of the 2015 Plan is to provide for the necessary wastewater conveyance, treatment, and disposal facilities to meet the needs of the projected service area for LACSD Nos. 26 and 32 through the year 2015 in a cost-effective and environmentally sound manner.

#### *7.1.1.2.2 Acton-Agua Dulce Conceptual Master Plan for Water Facilities*

Acton and Agua Dulce are communities located in the unincorporated areas of the County in the upper parts of the Watershed. The 2004 *Acton-Agua Dulce Conceptual Master Plan for Water Facilities* was prepared for LACWWD No. 37 for the purpose of developing a conceptual plan for providing water service to Agua Dulce and portions of Acton in order to assess the feasibility and interest in connecting these areas into the District's existing distribution system. The report provides the current and forecasted water demands for Acton and Agua Dulce private users, and for the Agua Dulce Winery and Vineyard.

#### *7.1.1.2.3 CLWA Draft Recycled Water Master Plan*

CLWA's 2002 *Draft Recycled Water Master Plan* (2002 Master Plan) is a planning document that updates the 1993 *Draft Reclaimed Water Master Plan*. The 2002 Master Plan was prepared to provide the information necessary to allow CLWA to develop a cost-effective recycled water system within its service area. The document considers significant issues affecting recycled water sources, supplies, users, and demands.

### 7.1.1.3 City, County, and Federal Land Use Plans

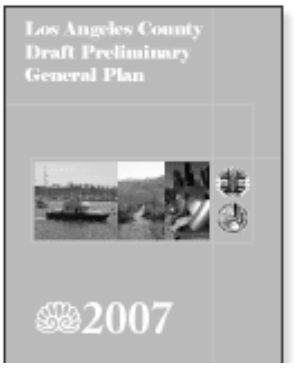
Land use plans provide for the scientific, aesthetic, and orderly disposition of land, resources, facilities and services of urban and rural communities. General plans are a compendium of city or county policies regarding long-term development, in the form of maps and accompanying text. In California, general plans have seven mandatory elements (circulation, conservation, housing, land use, noise, open space, safety and seismic safety) and may include any number of optional elements (such as water, air quality, economic development, hazardous waste, and parks and recreation). Most local general planning documents generally have identified water management resource strategies that integrate with land use planning efforts. By law, each city and county is required to update the Housing Element of its general plan every five years and the Governor's Office of Planning and Research recommends that the remaining elements be reviewed every eight to ten years.

#### *7.1.1.3.1 City of Santa Clarita General Plan*

The *City of Santa Clarita General Plan* was prepared in 1991. The General Plan is comprised of 12 elements, including the seven elements mandated by the State and six additional elements: Community Design; Air Quality; Parks and Recreation; Human Resources; Economic Development and Community Revitalization; and Public Services, Facilities, and Utilities. The General Plan also identifies potential recycled water users.

#### *7.1.1.3.2 Los Angeles County General Plan*

The *Los Angeles County General Plan*, published in 1980, is the outline for growth and development in the unincorporated areas of the County. The Plan provides for the management and preservation of existing land uses and community character, including agricultural, residential, open space, etc. within the County, while providing for new recreational opportunities and infrastructure to support the population's needs. The General Plan is designed to guide the long-term physical development and conservation of the County's land and environment through a framework of goals, policies and implementation programs. The General Plan also provides a foundation for more detailed plans and implementation programs, such as Area or Community Plans, zoning ordinances, and Specific Plans. The General Plan is currently being updated, with a preliminary draft plan released in 2007.



*A Preliminary Draft of the Los Angeles County General Plan Update was released in 2007*

#### *7.1.1.3.3 Newhall Ranch Specific Plan*

The *Newhall Ranch Specific Plan*, prepared for the County and adopted in 2003, guides future development of the Newhall Ranch property. The document sets forth a comprehensive set of plans, development regulations, design guidelines, and implementation programs designed to produce a project consistent with the goals, objectives, and policies of the *Los Angeles County General Plan* and *Santa Clarita Valley Area Plan*, as proposed for amendment according to General Plan Amendment No. 94-087. This Specific Plan is regulatory in nature and serves as zoning for the Newhall Ranch community. Subsequent development plans and subdivision maps must be consistent with both this Specific Plan and the *Los Angeles County General Plan*.

#### *7.1.1.3.4 Los Angeles County, Santa Clarita Valley Area Plan*

The *Santa Clarita Valley Area Plan*, prepared in 1984 and updated in 1990, was prepared by the County for use in making public policy decisions relating to the future of the Valley. The Area Plan provides population forecasts for the communities within the Valley, as well as policies specific to the entire Valley for most resource categories; however, water management is discussed in brevity within the Area Plan. The Area Plan has since become outdated and no longer addresses the current concerns of the Valley especially as it has grown rapidly during the past decade. The Area Plan addresses issues from the City of Santa Clarita and County viewpoints independently, when in many cases, these issues could be addressed jointly for more efficiency and greater effectiveness. For this reason, the City of Santa Clarita and County have come together to develop, the *Santa Clarita Valley General Plan ("One Valley, One Vision")* (OVOV), to guide future development and protect the resources within the Valley.

#### *7.1.1.3.5 One Valley, One Vision Valleywide General Plan Project*

OVOV is a joint effort between the County, the City of Santa Clarita, and some of the regional stakeholders to develop a strategy for the future growth of the Valley and the preservation of natural resources. The results of this project will be a 20-plus year General Plan document and EIR for the entire Valley Planning Area. The Valley Planning Area includes the communities of Stevenson Ranch, Castaic, Val Verde, Agua Dulce, and the future Newhall Ranch; it also includes the City of Santa Clarita and its four communities of Canyon Country, Newhall, Saugus and Valencia. Day-to-day implementation of this General Plan, based on the Guiding Principles, will be administered by both the City of Santa Clarita and County for lands within their respective jurisdictions.

#### *7.1.1.3.6 Business Plan for the Angeles National Forest*

The *Business Plan for the Angeles National Forest*, which represents 70 percent of the County's open space, was developed by the US Forest Service to improve the abilities of the national forest to clearly communicate forest conditions and status to principal stakeholders. The plan discusses resource management in the Angeles National Forest, which encompasses activities related to the management, preservation, and protection of the forest's natural and cultural resources. The plan describes how watershed, soil and air management personnel work to protect and monitor air, water, and soil resources throughout the forest and surrounding area. Special designation areas and land ownership and adjustment staff work on programs to protect and enhance the geographic integrity of forest lands. Finally, data management allows forest personnel to analyze and store all data collected as part of these various programs.

### 7.1.1.4 Resource Conservation Plans

#### *7.1.1.4.1 Santa Clara River Enhancement and Management Plan*

The purpose of the SCREMP is to provide a guidance document for the preservation, enhancement, and sustainability of the physical, biological, and economic resources that occur within the 500-year floodplain limits of the Santa Clara River, one which will be of benefit to Stakeholders when planning and implementing projects and activities. The plan was prepared by the Ventura County Watershed Protection District (VCWPD) and the LACDPW. The final SCREMP document summarizes reports that were prepared in 1995 and 1996, characterizing biological and water resources, cultural resources, aggregate, flooding, and access and

recreation. More recent products include wetland plant and environmental permitting guides for stakeholders, a workstation at the County that will allow the public to use available information to develop their environmental permit application materials, and a water quality monitoring station at the Los Angeles/Ventura County line to improve the existing river water quality database.

#### *7.1.1.4.2 South Coast Missing Linkages Project*

In 2006, South Coast Wildlands, an environmental non-profit (501c3) organization dedicated to protecting and restoring connected wildland systems and the ecosystems upon which these systems rely, completed the South Coast Missing Linkages Project, aimed at maintaining and restoring connections between wild lands in the South Coast Region. The steering committee for the report included staff from the US Forest Service, CDFG, and US FWS. The report, "Missing Linkages," examines 15 specific geographic connections in Southern California that conserve essential biological and ecological processes. More than 125,000 acres of open space between Los Padres National Forest and the Santa Monica Mountains National Recreation Area are named as areas that need protection to create wildlife corridors. The report is intended to be a guide for cities, counties, Caltrans and land protection groups such as The Nature Conservancy looking to mitigate the effects of development on wildlife. There are three identified linkages in the Region: Santa Susana Mountains to the Sierra Madre Range, Sierra Madre Range to Castaic Range, and San Gabriel Mountains to Castaic Range.

#### *7.1.1.4.3 Upper Santa Clara River Upper Watershed Conservation Plan*

This plan was developed by the Nature Conservancy to guide conservation activities in the Upper Santa Clara River Watershed, with particular emphasis on protecting the wildlife corridor known as the San Gabriel-Castaic Linkage. Using input from over a dozen different entities, natural communities and species to be conserved were identified, threats to the viability of natural communities were documented, and opportunities for protection and enhancement were charted. Based on this information conservation targets are developed. The plan identifies strategies that can be undertaken to enhance the viability of the conservation targets. Benchmarks are described against which plan success can be measured.

#### *7.1.1.4.4 Upper Santa Clara River Watershed Arundo and Tamarisk Removal Program Long-Term Implementation Plan*

*Invasive tamarisk plant*

The Ventura County Resource Conservation District (VCRCD), as lead agency for the Ventura County Arundo Task Force, in conjunction with its partners, are developing a regional Arundo and Tamarisk eradication program in the Upper Santa Clara River Watershed. The California Department of Food and Agriculture (CDFA) recently proposed the addition of Arundo and Tamarisk to the CDFA Noxious Weed List in the California Code of Regulations. The project benefits the Upper Santa Clara River Watershed, and helps restoration efforts downstream in Ventura County as it will reduce the amount of Arundo that annually washes out of the river channel and is deposited on downstream beaches. The long-term goal of the Ventura County Arundo Task Force is the eradication of Arundo from all portions of the Santa Clara River, both in Los Angeles and Ventura counties.

#### 7.1.1.5 Water Quality Plans

##### *7.1.1.5.1 Los Angeles Regional Water Quality Control Board Basin Plan and Amendments*

The *Los Angeles RWQCB Basin Plan*, prepared in 1994, is designed to preserve and enhance water quality and protect the beneficial uses of water within the Los Angeles region. Specifically, the Basin Plan designates beneficial uses for surface and ground waters, sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy, and describes implementation programs to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. As conditions change, such as the identification of new TMDLs or water quality standards, the Basin Plan is amended. Following adoption by the RWQCB, the Basin Plan and subsequent amendments are subject to approval by the SWRCB, the State Office of Administrative Law, and the US EPA.

### 7.1.2 Monitoring and Data Management

Within the Region there is an existing system in place for collecting data on groundwater and surface water supplies and water quality. Collection of data can be used to help quickly identify data gaps, assess project and program performance, support statewide data needs, and integrate with other regional and statewide programs.

Data is vitally important to agencies trying to maximize operating efficiency and design projects with limited budgets. The types of data available, current relevance and trends, and knowledgeable people that can interpret the data are all important. Equally important is the opportunity for Federal and State agencies to view local data for their own monitoring needs and to better understand local conditions.

### 7.1.3 Monitoring

#### 7.1.3.1 Groundwater Monitoring

##### *7.1.3.1.1 MOU between the Santa Clarita Valley Purveyors and the United Water Conservation District*

United Water Conservation District (UWCD) is a water district in Ventura County that encompasses 214,000 acres of the Santa Clara River Valley and the Oxnard Plain. In 2001, Upper Basin Water Purveyors (CLWA, LACWWD No. 36, NCWD, SCWD, and VWC) and UWCD prepared and executed a MOU to cooperatively manage local groundwater supplies. As a result of the MOU, the cooperating agencies have undertaken the following measures: integrated their database management efforts; developed and utilized a numerical groundwater flow model for analysis of groundwater basin yield and containment of groundwater contamination; and continued to monitor and report on the status of Basin conditions, as well as on geologic and hydrologic aspects of the overall stream-aquifer system. This information is now embodied in the Region's GWMP.

#### *7.1.3.1.2 Regional Groundwater Flow Model for the Santa Clarita Valley*

The development and calibration of a numerical groundwater flow model of the entire basin was initiated as a result of the 2001 MOU among the Upper Basin Water Purveyors (CLWA, LACWWD No. 36, NCWD, SCWD, and VWC) and UWCD. The groundwater model was initially intended for use to predict aquifer response to the planned operating ranges of pumping. However, the groundwater flow model has also been used to analyze the control of perchlorate contaminant migration under selected pumping conditions. In 2004, the DTSC reviewed and approved the construction and calibration of the regional model as described in the final model report, *Regional Groundwater Flow Model for the Santa Clarita Valley, Model Development and Calibration* ($CH_2M$ Hill 2004a). After DTSC approval, the model was used to simulate the capture and control of perchlorate by restoring impacted wells, with treatment. The results of that work are summarized in a second report, *Analysis of Perchlorate Containment in Groundwater Near the Whittaker-Bermite Property, Santa Clarita, California* ($CH_2M$ Hill 2004b).

*Groundwater Observation Well*

The purveyors and CLWA have initiated an update to the Groundwater Basin Yield Analysis and the Operations Plan to reflect changes in groundwater anticipated due to global warming, reduced state water reliability, and planned recharge projects. It is anticipated that this update will be completed by Fall 2008.

#### *7.1.3.1.3 Groundwater Operating Plan (from 2005 UWMP)*

The groundwater component of overall water supply in the Region derives from a groundwater operating plan developed over the last 20 years to meet water requirements (municipal, agricultural, small domestic) while maintaining groundwater in a sustainable condition (i.e., no long-term depletion of groundwater or interrelated surface water). This operating plan also addresses groundwater contamination issues, consistent with both the MOU and the GWMP described above. The groundwater operating plan is based on the concept that pumping can vary from year to year to allow increased groundwater use in dry periods and increased recharge during wet periods and to collectively ensure that groundwater is adequately replenished through various wet/dry cycles. As described in the MOU, and subsequently formalized in the GWMP, the operating yield concept has been quantified as ranges of annual pumping volumes.

The ongoing work of the 2001 MOU has produced two formal reports. The first report, described above ($CH_2M$ Hill 2004a), documents the construction and calibration of the groundwater flow model for the Valley. The second report, dated August 2005, presents the modeling analysis of the purveyors' groundwater operating plan ($CH_2M$ Hill and Luhdorff and Scalmanini 2005). Ultimately, the intent to of the operating plan is to maintain sustainable groundwater conditions to support the combination of municipal (purveyor), agricultural, and small private groundwater use on an ongoing basis.

The groundwater operating plan is summarized in Table 7.1-1.

**TABLE 7.1-1**
**GROUNDWATER OPERATING PLAN FOR THE SANTA CLARITA VALLEY**

| | Groundwater Production (acre-feet) | | | |
|---|---|---|---|---|
| **Aquifer** | Normal Years | Dry Year 1 | Dry Year 2 | Dry Year 3 |
| Alluvium | 30,000 to 40,000 | 30,000 to 35,000 | 30,000 to 35,000 | 30,000 to 35,000 |
| Saugus | 7,500 to 15,000 | 15,000 to 25,000 | 21,000 to 25,000 | 21,000 to 35,000 |
| **Total** | **37,500 to 55,000** | **45,000 to 60,000** | **51,000 to 60,000** | **51,000 to 70,000** |

Source: 2005 UWMP.

### 7.1.3.2 Water Quality Monitoring

Drinking water quality is monitored through the following means.

#### *7.1.3.2.1 Safe Drinking Water Act (SDWA) Compliance Monitoring and Reporting*

All public water systems are required to produce water that complies with the SDWA. To this end, specific monitoring information is required and conducted routinely. Results of the monitoring are reported to DPH. In addition, monitoring information is required to be published in an annual Consumer Confidence Report (described below).

#### *7.1.3.2.2 Unregulated Contaminant Monitoring Rule Results*

The 1996 SDWA Amendments mandate that the US EPA publish a list of unregulated contaminants that may pose a potential public health risk in drinking water. This list is called the Contaminant Candidate List. The initial 1998 accounting listed 60 contaminants. US EPA uses this list to prioritize research and data collection efforts for future rulemaking purposes. The 1996 SDWA Amendments incorporated a tiered monitoring approach. The rule required all large public water systems and a nationally representative sample of small public water systems serving less than 10,000 people to monitor the contaminants. The information from the monitoring program for the Region are compiled and submitted to the State.

#### *7.1.3.2.3 Monitoring Done as Part of TMDL Implementation*

As discussed in Section 7.1.1.5, as conditions change in the Region, such as the identification of new TMDLs or water quality standards, the Los Angeles RWQCB Basin Plan is amended. Compliance monitoring is required by the Los Angeles RWQCB, and performed on an ongoing basis in order to determine if a watershed is in compliance with an identified TMDL. A compliance monitoring program for implementing a TMDL would generally include the anticipated compliance points for the monitoring program, parameters to be measured, analytical methods and their sensitivity for reliably detecting the regulated chemicals, frequency of measurements, etc. With such information it will be possible to evaluate whether the proposed compliance monitoring could be expected to be adequate for detecting significant violations of the requirements set forth in the TMDL.

### 7.1.3.3 Surface Water Flow Monitoring

LACDPW operates and maintains six automatic rain gauges and two stream flow gauges in the Region. Rain gauges continuously record information for precipitation in durations ranging from 5 minutes to 24 hours. Rain gauges are located in Newhall, Aliso Canyon, Bouquet Canyon,

Mint Canyon, Acton Camp, and at the Santa Clara River headwaters. The two stream flow gauges are located near the Lang railroad bridge and near the Interstate-5 crossing of the Santa Clara River. The records for these gauges go back for many years. For example, the Lang stream flow gauge record goes back to April 1970 and the Old Road Bridge (Interstate-5) gauge goes back to September 1981.

### 7.1.4 Data Reporting

#### 7.1.4.1 Data Reporting as Part of the City of Santa Clarita Municipal National Pollutant Discharge Elimination System Permit

The City of Santa Clarita's Municipal National Pollutant Discharge Elimination System (NPDES) Permit requires developers of certain developments/redevelopments to prepare engineering documents to prevent potential pollutants from entering the storm drain system, such as an Urban Storm Water Mitigation Plan (USMP) and/or Storm Water Pollution Prevention Plan (SWPPP). The municipal NPDES requires the City of Santa Clarita to submit an Annual Storm Water Permit Report and Assessment to the Los Angeles RWQCB. The Annual Reports include the information necessary to assess compliance relative to the permit, and the effectiveness of implementation of permit requirements on storm water quality.

#### 7.1.4.2 Data Reporting as Part of County of Los Angeles Municipal Storm Water Permit

The County of Los Angeles Municipal Storm Water Permit provides the waste discharge requirements for the discharge or contributions to discharges of storm water and urban runoff from municipal separate storm sewer systems (storm drain systems). The countywide permit covers the LACFCD, the County, and the 84 incorporated cities within the LACFCD, including the City of Santa Clarita. Each entity permitted under the countywide permit must implement a storm water quality management program (SQMP). The data that is collected as part of the SQMP is submitted annually to the Los Angeles RWQCB, which is then compiled in the unified Annual Storm Water Program Report. Each unified report documents the Permittees' progress in implementing the SQMP and the requirements of the countywide permit. Data that is collected, including the annual reports, are available for public review on the Los Angeles RWQCB's website.

##### *7.1.4.2.1 Annual Santa Clarita Valley Consumer Confidence Reports*

The preparation of Consumer Confidence Reports is required by the California Health and Safety Code §116470, as well as the SDWA and US EPA. This code requires every public water system, as a condition of its operating permit, to annually prepare a report and provide a copy of that report to each customer. It also requires public water systems with more than 10,000 service connections that detect contaminants above their public health goals (PHGs) to provide PHG exceedance reports every three years and to hold public hearings regarding their reports. The Consumer Confidence Report includes information on a system's source water, the levels of any detected contaminants, and compliance with drinking water regulations, plus some educational material. Contaminants typically reported include turbidity, coliform, lead/copper, unregulated contaminants, and those contaminants of concern specific to a particular location.

The annual Consumer Confidence Report for the Valley is provided by CLWA and the local water purveyors. The goal of the report is to provide customers with the most current information about the quality of their water. Each report contains a summary of thousands of water quality tests performed in the Valley, as well as discussions of noteworthy contaminants, updates on regulatory news, and tips on saving indoor and outdoor water use.

#### 7.1.4.3 Data Reporting as Part of the Memorandum of Understanding Regarding Urban Water Conservation in California

The *Memorandum of Understanding Regarding Urban Water Conservation in California* was originally executed in 1991. The MOU includes several water conservation BMPs intended to reduce California's long-term urban water demands, and signatory agencies report progress on their implementation to the CUWCC. The BMPs are currently implemented by MOU signatories on a voluntary basis, but recent legislation institutes new requirements for demonstration of water conservation measure implementation in order to qualify for State grant funding.

The County signed the MOU in 1996 on behalf of all its Waterworks Districts. CLWA signed the MOU in 2001 on its own behalf as a water wholesaler, and on behalf of the local retail water purveyors. NCWD signed the MOU separately on its own behalf in 2002. VWC signed the MOU separately on its own behalf in 2006. Each of these agencies now files BMP implementation reports with the CUWCC.

### 7.1.5 Identified Data Gaps

The Stakeholders have devoted a number of meetings to the discussion of existing data, data formats, and the need for additional information. The initial steps in preparing this IRWMP included conducting a detailed review of existing sources and working with the Stakeholders to identify gaps and deficiencies. Data gaps represent information crucial to a greater understanding of the Region and help develop context for future projects and management actions.

The Stakeholders identified two main gaps/deficiencies:

- Lack of comprehensive knowledge of all groundwater demands, particularly demands from privately owned wells in the watershed
- Lack of model(s) that can simulate the existing and future land uses upstream to forecast changes to flood flows and low flows as well as sediment yield and transport

Lack of comprehensive data on groundwater demands has been an ongoing issue in the Region. Past planning efforts have attempted to quantify the location of, and water demand from privately owned wells in the Region. However, data on private groundwater pumping is not systematically gathered or reported because in California, with few exceptions, a private groundwater pumper is not required to get a permit or to monitor or report their groundwater use. As described in Section 2, during preparation of the 2005 UWMP, the Santa Clarita Valley Well Owners' Association provided an estimate of private well pumping in the San Francisquito Canyon portion of the East Subbasin. This data indicates that pumping is about 1.2 AFY per private well, with total private pumping less than 500 AFY. Based on these estimates, private well pumping is no more than approximately one percent of typical Alluvial Aquifer pumping by the purveyors and other known private well owners (e.g., agricultural pumpers) combined.

Lack of models to forecast runoff based on land use is a subject of ongoing collaboration between the US ACE, LACDPW, and the VCWPD. These agencies are developing a model to simulate land use and resultant river flows. Where possible, this newly generated data will be integrated into the IRWMP documents. It is anticipated that further data deficiencies will be identified. These may be the subject of future funding requests either through Proposition 84 or from other sources. However, the Stakeholders have expressed a clear preference for focusing effort on actions to remedy known problems (i.e., invasive species, hard water) rather than expending time and money on studies.

## 7.2 Data Management and Monitoring During Plan Implementation

### 7.2.1 Plan Performance

Generally, the success of the IRWMP will depend on how well the individual plan objectives are accomplished. Achievement of all of these objectives will, in large part, determine the success of local integrated regional water management planning processes.

As described in Section 5, IRWMP updates are a defined task within future IRWMP governance. This IRWMP is a dynamic document and is part of an ongoing local effort to achieve integrated local water management. The process, through Stakeholder participation and plan revisions, will continue for many years and will be an effective mechanism for addressing the water management issues facing the Region. As a consequence, IRWMP objectives, regional priorities, and statewide priorities will continue to be reviewed for relevance and modified as needed to ensure the overall IRWMP reflects regional changing needs and continues to be effective. Additionally, Candidate Projects will be reviewed and evaluated on a regular (every five years) basis to ensure that current plan objectives will be met and that the resulting Plan Projects offer the greatest benefit possible. Periodically, a new set of Plan Projects will be selected to address revised IRWMP objectives and State and regional priorities.

This ongoing review and update allows the plan to undergo “adaptive management”, e.g., allow the IRWMP to evolve in response to changing conditions and as better data is developed. IRWMP revisions will result in:

(1) An updated evaluation of information and data related to watershed conditions

(2) An evaluation of projects/actions and their contribution to meeting IRWMP objectives

(3) Revised objectives, strategies, and projects based on new conditions and past project successes

As discussed in Section 3.1, in developing the IRWMP objectives, Stakeholders determined that it was important that they not only be measurable, but also that the existing conditions of the resources at issue be quantified so that change/progress could be reasonably ascertained at a later date. These performance measures were developed to allow progress of the individual projects to be measured and to gauge the impact of the overall IRWMP.

As projects are implemented in the Region as part of this IRWMP, project performance will be assessed and outcomes will be monitored, and the results from this monitoring will be used to

guide future project implementation. If monitoring reveals, for example, that a project is progressing as planned and regional changes do not necessitate revisiting project implementation, then changes to project prioritization would not be anticipated. However, if monitoring reveals that a project, or suite of projects, are not producing the anticipated result, corrective actions (whether it be improving a specific project, changing the project prioritization, strengthening the measures by which those projects are being monitored, etc.) can be implemented. This information will feed into future updates of the plan, and keeps it a living document.

### 7.2.2 Data Collection

As described in Section 7.1.2, groundwater, surface water, and water quality monitoring already takes place within the Region. Many of the mechanisms by which CLWA, the retail purveyors, the SCVSD, and LACDPW collect data are described by the monitoring programs and procedures described therein.

Data collected as part of this IRWMP can be used to support existing state programs such as the Surface Water Ambient Monitoring Program, the Groundwater Ambient Monitoring and Assessment, and the California Environmental Resources Evaluation System.

- Surface Water Ambient Monitoring Program (SWAMP). All the surface water data collected as part of the IRWMP will be consistent with SWAMP database compatibility guidelines, and will be exported annually to the state database using the required data submission formats. Where appropriate, IRWMP sampling activities will be performed according to SWAMP quality assurance requirements.

- Groundwater Ambient Monitoring and Assessment (GAMA). Groundwater data collection efforts as part of the IRWMP will be coordinated with the needs of the GAMA program and will be consistent with database specifications so that the data can be easily submitted, shared, and integrated into the GAMA database. Field sampling efforts will be coordinated with the GAMA program to eliminate duplicative data collection efforts and fill data gaps.

- California Environmental Resources Evaluation System (CERES). All data and reports will be sent to CERES so that information will be available and useful to a wide variety of users.

As discussed in Section 5, it will be the responsibility of the Successor RWMG to implement this IRWMP. The Successor RWMG will be tasked with responding to changing conditions and ensuring necessary data is collected and evaluated in order to determine the parameters of the performance measures to be used in project implementation. The Successor RWMG will be required to respond to ongoing decisions and tasks throughout IRWMP implementation to address a systematic approach to tracking, measuring and reporting on the IRWMP performance over time.

### 7.2.3 Data Reporting

Dissemination of data to Stakeholders, agencies, and the general public is integrated into the IRWMP process to ensure overall success. A requirement of the Proposition 50 Guidelines is

the routine reporting on project performance. The routine collection of data that occurs as part of other processes (as described in Section 7.1.3) will support the data reporting that is required as part of the IRWMP process. A database for maintaining project information is available to each Stakeholder for proposing new, or updating current or old, projects for inclusion in the IRWMP. Although updating the data is not a requirement of the Local Project Sponsors, it is in the best interest of the sponsors and larger Stakeholder group to keep the database current, so the most updated information is used to evaluate projects using the project prioritization framework as outside funding sources become available. Data collected or produced as part of the IRWMP will then be presented and disseminated during future meetings.

A public website has been created to store data and information about the IRWMP process so that the public can find information about public meeting dates, agendas, and notes. The website provides information on the IRWMP process and posts annual reports and relevant documents that can be downloaded. Data collected during the process will be available on the website, as well as links to other existing monitoring programs to promote data between these programs and the IRWMP. This will provide a means to identify data gaps (e.g., information needed to provide a more complete assessment of the status of a specific issue or program) and to ensure that monitoring efforts are not duplicated between programs.

The IRWMP website, www.scrwaterplan.org, provides a mechanism for Stakeholders to upload project information regarding water supply, water quality, and other benefits of the project, which will be collected in a database to manage, store, and disseminate information to the public.

# Section 8: Coordination and Outreach

This section provides information on outreach and coordination with local agencies and the broader public, undertaken as part of IRWMP development.

## 8.1 Coordination with Local Land Use Planning

The RWMG includes the City of Santa Clarita, CLWA, LACFCD, NCWD, RMC, SCWD, SCVSD, and VWC. The City of Santa Clarita is the land use planning agency responsible for land use decisions within City borders. Los Angeles County is the land use agency for the unincorporated areas of the Region. Most projects envisioned within this IRWMP in some way are affected by land use planning.

### 8.1.1 Linkages Between the IRWMP and Local Planning Documents

This section describes the linkages and dynamics between the IRWMP and local planning. The IRWMP has drawn heavily on existing planning documents and planning programs of local agencies in the following ways:

- Regional Description. The IRWMP has utilized information from the *Los Angeles County General Plan*, the County's *Santa Clarita Valley Area Plan*, the City of Santa Clarita's *General Plan*, data from the ongoing OVOV planning process, and the *Business Plan for the Angeles National Forest*, as well as discussions with City, County, and National Forest planning staff, to describe the Region. The IRWMP relies on these planning documents to describe the existing setting of the Region, including existing and planned land uses (see Section 2). In addition to providing information on the social and cultural makeup of the regional community, these plans also provided information on population projections, economic conditions and trends and special environmental resources and environmental water demands.

  The *Los Angeles County General Plan*, the County's *Santa Clarita Valley Area Plan,* the City of Santa Clarita's *General Plan*, OVOV, and the *Business Plan for the Angeles National Forest* provided a framework from which to further analyze potential regional issues and needs with the Stakeholder group.

- Regional Issues, Needs, and Objectives. Stakeholders were asked to identify major water issues and problems. Specific consideration of regional water supplies and issues was informed with data from multiple local planning documents, but primarily from UWMPs prepared by the local water agencies. Water quality issues were examined using information contained in the Los Angeles RWQCB *Basin Plan* and its amendments. Habitat, species, and resource stewardship issues were examined based on general plans, the *Business Plan for the Angeles National Forest*, planning documents prepared by VCWPD, including the *Santa Clara River Enhancement and Management Plan* and documents of, and discussions with, the VCRPD.

Based on the issues identified, Stakeholders were then asked to develop IRWMP objectives.

As described in Section 3, in developing objectives for the IRWMP, Stakeholders determined that it was important that objectives not only be measurable, but also that the existing condition of the resources at issue be quantified so that change/progress could be reasonably ascertained at a later date. The existing condition was evaluated and summarized using a variety of reports and studies and provided to the Stakeholders for review and comment. These reports, and Stakeholder comments, contained valuable insight about how change or progress towards a given objective could be measured. Local planning references used to develop measurable objectives are identified in Section 3.

- Outreach. Because the County and City of Santa Clarita general plans, along with the *Business Plan for the Angeles National Forest,* provide a comprehensive overview of the Region, these plans were reviewed to assist with identifying potential Stakeholders and interests for participation in the IRWMP.

- Project Prioritization Process. One of the criteria used to sort Candidate Projects is the project's compatibility with other planning documents for the Region (see Section 5).

### 8.1.2 Participation by Local Planning Entities

Local planning entities, including City of Santa Clarita and County planning staff, local US Forest Service personnel, and Resource Conservation District staff participated in development of the IRWMP and will participate in continuing IRWMP implementation. These local planning entities participated in Stakeholder meetings, provided updated data (as described above), reviewed and commented on IRWMP sections, sponsored Candidate Projects, and participated in the initial sorting of Candidate Projects. As described in Section 5.5.1, these planning agencies, along with the general Stakeholder group, will be asked to participate in all updates of the IRWMP, by participating in meetings, providing information and data necessary to revise objectives, by making recommendations regarding project ranking, and by sponsoring projects.

## 8.2 Coordination with State and Federal Agencies

### 8.2.1 Participation in IRWMP Development

RWMG members have a long history of working with State and Federal agencies to address water management issues. Local agency staff and elected officials have worked closely over the years with the Los Angeles RWQCB, CDFG, DWR, Resource Conservation districts, DPH, the US ACE, the US FWS, and the US Forest Service.

The Los Angeles RWQCB, CDFG, and US Forest Service were active participants in development of the IRWMP. These agencies regularly attended Stakeholder meetings and participated in the group discussions. These agencies also provided up-to-date information related to the resources they are tasked with managing and protecting. The US ACE provided a special presentation on their local activities. In general, State and Federal agency Stakeholders:

- Participated in Stakeholder meetings
- Reviewed and commented on IRWMP sections

- Provided guidance on project sorting
- Submitted Candidate Projects

In addition, several agencies, including CDFG, US Forest Service, and the Resource Conservation districts participated in subgroups to assist with the refinement of objectives. At key milestones in plan development, the RWMG sought input on the plan from DWR. On multiple occasions, DWR participated in Stakeholder meetings and reviewed IRWMP sections.

### 8.2.2 Participation in IRWMP Implementation

As described in Section 5.5.1, the RWMG intends to continue coordination with State and Federal agencies as the IRWMP is updated through time. It is anticipated that State and Federal agencies will continue to participate in the IRWMP as Stakeholders and Local Project Sponsors. Ongoing participation by these entities will enhance the technical data and knowledge in the IRWMP. These agencies will also be able to identify and recommend funding sources for IRWMP implementation.

In addition, implementation of Plan Projects will require coordination with multiple Federal and State agencies, such as:

- CDFG and US FWS. CDFG and US FWS oversee implementation of the California and Federal Endangered Species Act and regulate activities that may impact endangered species and their habitats (Fish and Game Code, Sections 2050 et seq.). Any Plan Projects with potential impacts to sensitive species will require coordination with these agencies. CDFG also oversees any activity that will substantially modify a river, stream, or lake (Fish and Game Code Sections 1600 et seq.). Before undertaking any activity that would result in modification of a river, stream, or lake, it will be necessary to obtain a Lake or Streambed Alteration Agreement from CDFG.

- DPH. DPH regulates public water systems, including allowable treatment technologies for drinking water and the treatment and distribution of recycled water. Any Plan Projects that involve treatment of drinking water or recycled water will require coordination with DPH.

- Los Angeles RWQCB. The Los Angeles RWQCB sets goals for groundwater and surface water quality in Los Angeles and Ventura counties. Based on these goals, the Los Angeles RWQCB regulates discharges to groundwater and surface water, including storm water runoff. Any Plan Projects that could result in storm water runoff or which could result in a change in discharges to surface or groundwater may have to coordinate with the Los Angeles RWQCB. Under the federal Clean Water Act Section 401, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification (called a 401 Certification) to ensure that the proposed project will not violate state water quality standards. Most 401 Certifications are issued in connection with US ACE permits for dredge and fill discharges. The Los Angeles RWQCB reviews projects for 401 Certification.

- US ACE. US ACE has regulatory authority over all discharges of dredge and fill materials within navigable waters and waters (such as intermittent streams and wetlands) with significant connection to navigable waters. The US ACE regulates such projects through

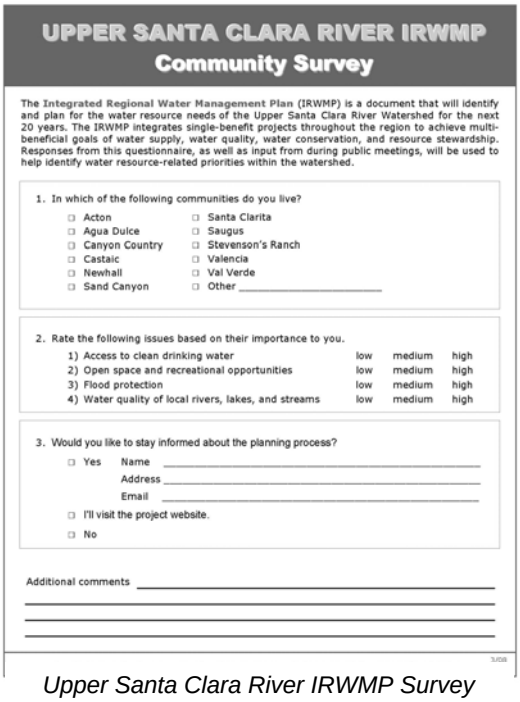
the issuance of permits. Any Plan Projects that could result in discharge of dredge and fill material to a water body may have to coordinate with the US ACE.

## 8.3 Disadvantaged Community Outreach

As defined by the *Integrated Regional Water Management Plan Guidelines*, a disadvantaged community (DAC) is a municipality, including, but not limited to a city, town or county, or a reasonably isolated and divisible segment of a larger municipality, that has an average MHI that is less than 80 percent of the statewide annual median household income. In 2000, 80 percent of the State of California's MHI was $37,994. As described in Section 2.5.3, no communities that meet the strict State definition of a DAC were identified within the Region. However, because cost of living varies from place to place, a statewide income measure may not be entirely applicable to a specific area. This fact is illustrated by the City of Santa Clarita housing assistance guidelines. The City of Santa Clarita housing assistance guidelines were used as a proxy measure of what income levels could be characterized as disadvantaged within the Region. By these proxy standards, a household of 4 persons would be considered disadvantaged if household income were less than $59,200.

In the spirit of providing "a safe, clean, affordable, and sufficient water supply to meet the needs of California residents, farms, and businesses" (CWC §79501(b)), an outreach effort directed at DAC members was developed. A DAC Outreach Subcommittee was formed, consisting of the City of Santa Clarita, LACDPW, and RMC, which was assisted by the facilitator.

Initially the DAC Outreach Subcommittee focused on identifying specific "pockets" of DACs in the Region. As part of this effort, the Subcommittee contacted SCE to try to get information on households in the Region participating in the SCE California Alternate Rates for Energy (CARE) program. The CARE program offers income-qualified customers a discount of 20 percent or more off their monthly electric bill. The intent is to survey these households with regard to their concerns related to water and water related resources in the Region. SCE is considering this request. The Subcommittee is hopeful that this data will be available to inform updates of this IRWMP.



**UPPER SANTA CLARA RIVER IRWMP**
**Community Survey**

The Integrated Regional Water Management Plan (IRWMP) is a document that will identify and plan for the water resource needs of the Upper Santa Clara River Watershed for the next 20 years. The IRWMP integrates single-benefit projects throughout the region to achieve multi-beneficial goals of water supply, water quality, water conservation, and resource stewardship. Responses from this questionnaire, as well as input from during public meetings, will be used to help identify water resource-related priorities within the watershed.

1. In which of the following communities do you live?
   - ☐ Acton
   - ☐ Agua Dulce
   - ☐ Canyon Country
   - ☐ Castaic
   - ☐ Newhall
   - ☐ Sand Canyon
   - ☐ Santa Clarita
   - ☐ Saugus
   - ☐ Stevenson's Ranch
   - ☐ Valencia
   - ☐ Val Verde
   - ☐ Other _____

2. Rate the following issues based on their importance to you.

| | | | |
|---|---|---|---|
| 1) Access to clean drinking water | low | medium | high |
| 2) Open space and recreational opportunities | low | medium | high |
| 3) Flood protection | low | medium | high |
| 4) Water quality of local rivers, lakes, and streams | low | medium | high |

3. Would you like to stay informed about the planning process?
   - ☐ Yes Name _____
     Address _____
     Email _____
   - ☐ I'll visit the project website.
   - ☐ No

Additional comments _____

*Upper Santa Clara River IRWMP Survey*

Because no specific pockets of DACs were identified, the DAC Outreach Subcommittee decided the best way to contact DAC members was to undertake opinion surveys and to advertise public workshops for the IRWMP in areas where economically disadvantaged people are likely to seek services. The surveys and advertisements were prepared in both Spanish and English; samples of the survey and public workshop advertisements are included in Appendix D.

Identified areas for opinion survey distribution and public workshop advertisement are:

- Santa Clarita Valley Senior Center
- Santa Clarita Community Center
- Val Verde Community Center

In addition, it was decided to both undertake the survey and to advertise the IRWMP public workshop during community events. Identified community events include:

- National Hispanic Environmental Council Career Day (April 4, 2008)
- Arbor Day (April 12, 2008)
- Emergency Expo (April 19, 2008)

The survey is still ongoing, but some initial results are available. When asked to "Rate the following issues based on their importance to you":

1) Access to clean drinking water
2) Open space and recreational opportunities
3) Flood protection
4) Water quality of local rivers, lakes, and streams

The majority of respondents selected all four issues for as having "high" importance. Of the four issues, responses show a slight preference for water quality of local rivers, lakes and streams and access to clean drinking water.

Advertisement of the public workshop for this IRWMP took place several weeks ahead of the date of the workshop. Surveys were conducted before and as a part of public comment on the public draft IRWMP.

### 8.3.1 Environmental Justice

Concerns for environmental justice will need to be addressed as part of IRWMP implementation. As the Region continues to develop, care will need to be taken to prevent creating environmental justice issues that unfairly affect certain communities. The IRWMP objectives of reducing water demand, improving operational efficiency, increasing water supply, improving water quality, and promoting resource stewardship, must be consistently applied to future projects so as to ensure greatest regional benefits without placing an undue burden on a specific community.

## 8.4 Public Outreach

Public outreach was an on-going effort during the IRWMP planning effort. Public outreach was accomplished through a variety of means including:

- Advertisement of the public hearing to initiate the preparation of the IRWMP
- Maintaining a website to facilitate public and Stakeholder outreach

- Advertising the IRWMP and its development on agency websites
- Inclusion of a public comment period on the agenda at each Stakeholder meeting
- Using email to inform Stakeholders about upcoming meetings
- Using email to facilitate distribution, review, and comment on the IRWMP by Stakeholders
- Using mail, newspaper notices, and flyers posted in community ventues to encourage public and DAC participation in the IRWMP process
- Holding a public workshop to review the draft IRWMP
- Regularly providing information to local media

The RWMG hosted a public hearing on May 15, 2007, to receive public input as to whether or not issues of the Region necessitated preparation of an IRWMP. This public hearing was noticed consistent with CWC §10541; notice of the public hearing was published twice (May 1 and May 8) in the *Santa Clarita Valley Signal*. This meeting marked the official start of the IRWMP process and the public outreach process. In order to develop a Stakeholder Group for the IRWMP the RWMG sent letters to potentially interested entities (this letter is contained in Appendix C).

All four town councils within the Region were given an introductory presentation about the IRWMP prior to the first meeting. The town councils consist of West Ranch, Castaic, Acton, and Agua Dulce. Each town council was invited to send an official representative to the Stakeholder meetings. Other town council members were also welcome to attend.

To enhance outreach and coordination with the public and the Stakeholder group, a website was established for the IRWMP (www.scrwaterplan.org). This website advertises the time and place of each of the upcoming Stakeholder meetings; the website also provides the handouts, agenda, and minutes for each of the past meetings. A visitor to the website can get maps of the Region, download sections of the draft IRWMP, and get the necessary forms and guidance for submitting a project concept. Links to the IRWMP website are provided on the websites of agencies participating in the RWMG.

Each of the Stakeholder meetings was open to the public and each meeting included a period reserved for public comment. A specific public workshop will be held to solicit public input on the draft IRWMP. This public meeting has been broadly noticed. As described in Section 8.3, advertisements for the public workshop have been provided at multiple community events and posted at multiple community venues. These public notices are in both English and Spanish. Notice of the public workshop was also published in the local newspaper.

The RWMG provided the public with regular updates on the IRWMP. These updates were contained in agency newsletters and local newspaper articles (see Appendix D). Members of the RWMG also made an effort to provide IRWMP updates in other public forums, including the regular WCVC meeting and at the West Ranch Town Council.

At the conclusion of the public draft IRWMP review period, public comments were incorporated, with guidance from the RWMG, so as to create the final IRWMP.

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